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Discontinuance of The Gazette

This is the last issue of the THERAPEUTIC GAZETTE, and in ringing down the curtain on a periodical which has had so long and interesting a career some explanation is due both subscribers and advertisers.

The journal was founded under the name of "New Preparations" in 1877, and assumed such proportions in 1880 that the name was changed to the "Therapeutic Gazette." William Brodie was editor of the periodical from 1880 to 1885. In the latter year Horatio C. Wood became editor, and in 1890 he was succeeded in turn by Robert Meade Smith. In 1892 Hobart A. Hare assumed the editorship, and with the assistance of Edward Martin as associate editor Dr. Hare has ever since remained in editorial charge of the publication.

The journal has therefore been continuously in existence for fifty years, and for thirty-five years has been under the editorial direction of Dr. Hare. Throughout all this period it has pursued a modest and conservative course and has distinguished itself for solidity of character and usefulness of content. As its title implies, the journal has sought throughout to confine itself pretty largely to the field of therapeutics, and our readers will agree with us that it has performed its function ably and well.

But, valuable as the GAZETTE has grown to be, changes have taken place in the personnel of The Swift Publishing Company which compel us to face a radical step. Mr. Swift himself died a few months ago. Mr. Skillman, who had been business manager of the GAZETTE for twenty-eight years, retired from active service on January 1 of this year. Dr. Hare, living an exceedingly busy life, feels that he would like to be relieved of editorial labor, and so it has seemed best under all the circumstances to discontinue the enterprise.

To Dr. Hare, indeed, the GAZETTE has represented but one of several activities. As author, professor, practitioner, and consultant he occupies a position of conspicuous leadership in the medical profession, and this rôle he will continue to play in future years. Relief from editorial responsibility will give him more time and more leisure for the duties which crowd upon him.

And so the GAZETTE goes out of existence with this March issue. We in the business offices of the journal say farewell to readers and advertisers with sincere regret, and we trust that they, too, will not see the journal discontinued without some feeling of loss.

THE SWIFT PUBLISHING COMPANY.

Original Articles

A Few Points in the Diagnosis and Treatment of Acute Mastoiditis

BY DR. S. MacCUEN SMITH

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Before taking up the diagnosis of acute mastoiditis, let us consider the principal prophylactic measure, for, after all, prevention should be our chief aim in dealing with mastoid as well as other diseases.

It has long been recognized that early myringotomy—in other words, prompt and free incision of the membrana tympani—is our best means of preventing mastoid and other complications by evacuating the secretion confined within the tympanic cavity. It not infrequently happens that, given a case in which a spontaneous rupture has occurred in one ear and a subsequent involvement and myringotomy in the other, this latter ear will progress to a rapid and complete recovery, whereas the former, in which pus was allowed to accumulate in sufficient quantity to cause rupture of the membrana tympani, will often go on, in spite of treatment, to surgical mastoiditis. This is due to the fact that the organisms in the tympanic secretion, which is under pressure, will find their way into the mastoid cavity via the attic and aditus. Furthermore, during this period of middle-ear accumulation and consequent pressure, the organisms are frequently absorbed, causing systemic disturbance and sometimes intracranial lesions.

It not infrequently happens in cases of spontaneous rupture that the perforation is badly located, or is too small, to provide for proper drainage. When these cases of spontaneous rupture are seen late, often after symptoms of mastoiditis have developed, the opening should be enlarged immediately and the incision carried into Shrapnell's membrane and along the posterior osseous wall down to the bone for about one-fourth of an inch external to the tympanic ring.

Briefly, therefore, myringotomy should be performed in all cases of bulging tympani. It should also be done early in severe middle-ear infections complicating measles, scarlet fever, diphtheria, pneumonia, typhoid fever, or influenza, even in the absence of marked bulging of the membrana tympani. From the fact that some tympanic diseases do occur without definite systemic manifestations, in which I would include aural pain, it is well that the ear should be examined frequently, even in the absence of aural symptoms, when the patient is suffering from any of the above-mentioned diseases.

Although timely and properly performed myringotomy is our one most important factor in preventing surgical mastoiditis, it must be remembered that the mastoid cavity is implicated to some extent in all cases of acute suppurative tympanic disease, and consequently the development of surgical mastoiditis is largely dependent upon the virulence of the invading organism, as well as the recuperative power and bodily resistance of the patient, and the maintenance of proper drainage. A continuation of symptoms following myringotomy suggests mastoiditis, though not necessarily surgical, but in the absence of a free discharge, which would call for a repetition of the myringotomy, surgical mastoiditis is frequently present; in other words, the need for *multiple* myringotomy is a definite indication of surgical mastoiditis. An ample myringotomy will suffice to relieve most cases of uncomplicated acute tympanic suppuration, especially if drainage is facilitated

by the use of suction (see illustration). This negative pressure not only empties the middle ear of its pent-up secretion, but serves to relieve, by depletion, the greatly swollen and congested mucosal lining. The resultant hyperemia increases leucocytosis, which in turn increases resistance and favors more rapid improvement.

Paracentesis, always unwise and mostly ineffectual, should never be employed, and for the sake of efficiency and in order to prevent confusion, this term should, in my judgment, be dropped from otologic literature.

In all cases of acute suppurative otitis media the patient should be kept in bed, the diet restricted, and free elimination established. The initial inflammatory process is favorably influenced by small doses of

tincture of aconite frequently repeated. Unquestionably the application of cold over the mastoid process, by means of the Leiter coil or the mastoid (rubber) ice-bag, is beneficial in the early or hyperemic stage. As few cases are seen sufficiently early, however, these cold applications are not often employed. If used at a later stage, the cold serves principally to relieve pain much in the same way as a hypodermic of morphia, but does not alter the progress of the disease. It does, however, definitely mask symptoms by relieving local tenderness, and produces a false sense of improvement. When cold is applied it should be kept on constantly for a period of twenty-four hours, but never renewed.

Irritating ointments, blisters, and bloodletting in any form are of no actual therapeutic value and should not be used, as they cause local tenderness which cannot be distinguished from that produced by mastoiditis interna.

When good drainage has been provided for, we must carefully watch the patient and await developments, which will soon decide for or against operation.

Acute mastoiditis, both of the surgical and non-surgical variety, is practically always secondary to an acute suppurative otitis media. As has already been stated, the mastoid cavity is implicated in all such cases. More often the inflammation and consequent exudate within the cell structure subsides when an early, free drainage has been established either by means of a myringotomy or an ample spontaneous rupture of the membrana tympani.

In the absence of sufficient drainage, or even though it is profuse, the case will frequently progress to surgical mastoiditis when the infection is caused by any of the more virulent organisms, such as the streptococcus hemolyticus and viridans, and the insidious streptococcus capsulatus, so that even in the absence of the usual mastoid symptoms we are justified in suspecting surgical mastoiditis in the presence of a continuous profuse discharge.

In some cases of acute, non-suppurative otitis media the mastoid is simultaneously involved. Our explanation of this not infrequent type is that the infection is carried through the blood-stream, this being observed more often as a complication of typhoid fever and pneumonia; and this variety is surgical.

The cortex in children is commonly thin and porous, favoring early carious erosion and perforation. Under such circumstances the classical symptoms of mastoiditis—redness, swelling and tenderness over the mastoid process—quickly develop. When the disease is confined largely to the tip, the tenderness is most marked there, and in cases of perforation of the tip (Bezold's mastoiditis) the pus collects in the soft tissues of the neck below the mastoid.

In young children the zygoma is frequently involved, causing swelling slightly above and in front of the ear, sufficient at times to more or less close the eye. This type of mastoid disease is often overlooked from the fact that there is little or no ob-

servable pathology over the process. In any event, whenever the pus has an exit through the routes above mentioned, the symptoms temporarily subside, giving false hope of betterment to the inexperienced.

Mastoiditis in the adult, and particularly in the aged, is potentially much more serious than in the child, owing to the consequent density and thickness of the cortex, which does not permit of external drainage through carious erosion, as in the child, but favors inward extension and development of intracranial lesions. It is obvious, therefore, that whereas procrastination may be proper and reasonably safe in a child, it may, for the above-mentioned reasons, become positively dangerous in the adult.

The hemorrhagic type of mastoiditis is recognized as distinctive and presenting rather definite characteristics. In one instance the symptoms may be very acute and severe, with an early perforation of the membrana tympani, followed by a sanguineous discharge. The other type is less acute, the initial symptoms are less severe, and examination frequently shows blebs on the external auditory canal or the membrana tympani, but the same character of discharge appears either through a spontaneous rupture or a myringotomy.

At operation the mastoid pathology is the same in both, presenting the characteristic hemorrhagic findings. The intracellular walls have not become broken down, as is customary in the average case of mastoiditis in which subsequently pus and granulation tissue are found. In their stead serosanguineous fluid is present or promptly produced when the intensely red mucosal lining is disturbed. In other cases bleeding is so constant and free as to render the operation decidedly difficult. I do not remember ever having found carious erosion exposing either the sinus or dura in hemorrhagic mastoiditis, although this is not infrequent in the fulminating type. When intracranial complications do occur, the infection is carried through the communicating vascular system.

Whether the immediate symptoms are very acute and severe, or very shortly become so, hemorrhagic mastoiditis is definitely septic in character, presenting rather early the local or classical symptoms of mastoid disease, attended by accelerated pulse, high temperature, etc., the prevailing organisms present being the streptococcus hemolyticus or the bacillus influenzæ.

Unfortunately the Roentgen-ray findings cannot be depended upon in this type of mastoiditis, because the ray does not show cellular changes in the presence of blood as it does in the presence of granulation tissue or a collection of pus. Inasmuch as hemorrhagic mastoiditis is practically always surgical, it is well that operative interference should receive early consideration. Indeed, this phase of the condition is usually forced upon one on account of the severe local and general symptoms present.

We must recognize the atypical painless type of mastoiditis—*i.e.*, those cases in which surgical mastoiditis develops practically without symptoms, either local or general. To a large extent the invading organism is responsible for this not unusual variety of mastoiditis, such as the bacillus mucosus capsulatus and Friedlander's bacillus.

It has fallen to my lot to have an unusually large number of cases of mastoiditis complicating diabetes. In the acute disease it is rather the rule to have a perforation of the cortex without pain. In the chronic type, where the cortex has become very much thickened, the direction of the consequent erosion is apt to be inward, thus exposing the dura, sinus, or the brain itself. Under these circumstances treatment must be directed to the relief of this additional complication, rather than the mastoid disease, which now becomes largely incidental.

The discharge in these cases is usually very profuse and creamy in consistency, or if granulation tissue is present it is blood-streaked. I have seen the discharge continue for many weeks without symptoms except a slight loss of appetite and perhaps some malaise, when suddenly the patient complains of head pain, accompanied by a rise in temperature, marked loss of appetite and other symptoms, depending on the type of

intracranial lesion that is now developing. During all this time there may not be present the classical symptoms of mastoid disease—pain, redness, and tenderness over the process. Inasmuch as mastoid disease of this type is slow of development, very definite changes have taken place within the cavity, which fortunately are readily detected by the Roentgen-ray, and this, together with a profuse discharge, lack of symptoms, both local and general, and the presence of sugar in the urine, presents a definite picture of diabetic surgical mastoiditis. Formerly such subjects were very poor surgical risks, many patients dying in diabetic coma without being afforded the benefits of surgery on account of the extreme risk involved. Latterly, since the use of insulin, supported by other therapeutic measures, especially diet, the majority of these patients can be operated upon without hesitancy. In skilful hands I have seen patients brought out of coma and the mastoid operation performed under nitrous oxide gas and oxygen without their lapsing again into coma following the operation, whereas in pre-insulin times, even when the same anesthetic was employed, a patient not infrequently would lapse into coma following the operation and never regain consciousness.

Some years ago I was shown an interesting series of cases of acute mastoiditis in children, the majority of whom had recovered without mastoidectomy. In some of these patients the carious erosion through the bone and soft parts provided for the release of the confined pus; in others, the secretion was evacuated by an incision through the soft part and a small opening through the cortex, which goes to prove the more recent investigations to the effect that through evacuation of pus from the mastoid cavity and consequent relief of pressure, necrosis seems almost instantly to cease. It must be that this mass becomes encapsulated or the resultant granulation tissue undergoes certain histologic changes and finally is converted into bone. Waiting for this process, however, is unwise and unsurgical, as failure must inevitably result in most instances.

In cases of mastoiditis in which resolution has apparently taken place but symptoms of mastoid disease recur, the indications are that the patient had not entirely recovered from the former attack and that some infectious material remained in the mastoid cavity. I have seen several subsequent attacks of this kind in the same patient. The remaining exudate, of whatever nature it may be, soon becomes the site of a recurrent inflammatory action and cannot be allowed to go through the various stages of the initial mastoiditis without incurring an increased danger of further complications, for with each reinfection additional area is involved, and even though the mastoid symptoms may entirely subside, the case is likely to develop into the chronic type of otorrhea, with all its attendant dangers, including loss of hearing and the various intracranial complications. It is wise to look upon these cases as purely surgical and at times urgently so.

Generally speaking, the simple mastoid operation should be performed in all cases of acute otorrhea which have extended over a period of two weeks or more and resisted the usual approved non-surgical treatment. There are some instances, however, in which the discharge will continue for a longer period but result in a spontaneous recovery.

If symptoms develop indicating a toxemia from pus absorption, operation is indicated at any stage of the disease, but it is always well to wait for the so-called "walling-off" process, which consists in giving nature time to seal off the smaller vascular supply in the mastoid, which greatly lessens the chance of sinus and other intracranial complications. Of course, if by waiting the patient's safety is jeopardized, the operation should be performed at once.

Mastoidectomy is indicated in all cases presenting the classical symptoms of mastoid disease when they are not due to furunculosis of the external auditory canal. These symptoms usually indicate a perforation of the cortex, developing late, and should not be awaited when other symptoms are present that call for mastoidectomy.

This is also true of cases involving the tip, which may result in Bezold's mastoiditis, as well as those implicating the zygoma above mentioned.

Drooping of the superior-posterior osseous wall, as well as a general narrowing of the lumen of the external auditory canal, is indicative of surgical mastoiditis. Especially is this true when other characteristic symptoms are present. When the disease is confined to the lower half of the process, especially the tip, this characteristic drooping above mentioned will not be present. Operation, however, is just as urgent in the latter case as in the former.

A mastoid operation should be performed in all cases in which nausea, vomiting, facial paralysis, vertigo, and symptoms of labyrinthine disease complicate an acute middle-ear suppuration.

When marked tenderness develops over the emissary vein during the course of an acute mastoiditis, or when facial paralysis appears, mastoidectomy is indicated. It often happens that serious involvement of the joints, heart, lungs, kidneys, and other organs complicates or accompanies acute aural disease. Under such circumstances the tendency is to wait for the subsidence of the symptoms induced by this metastasis before the initial focus of infection is removed. This practice unquestionably is justified in some instances, but I have seen the lives of patients jeopardized by deferring the mastoid operation too long.

In a case of acute otitis media of the painless type, with profuse otorrhea, in which the Roentgen-ray reveals the usual pathologic changes, mastoidectomy is indicated. Experience has shown that the development of constitutional symptoms, in a case like this, points to further complications.

Mastoidectomy is advised in the average case where a copious discharge has continued from three to four weeks, even in the absence of other symptoms, from the fact that the discharge must originate in the mastoid cells, as it would be impossible for such an amount to come from the small tympanic cavity. Confirmation of the presence of surgical mastoiditis is supplied by roentgenology.

As much as we value roentgenology to assist in the diagnosis of mastoid disease, we must not permit the evidence so produced to influence our judgment of the clinical aspects of the case. Repeated Roentgen-ray pictures will often show the progress of the disease, and this, in connection with the clinical picture, will frequently enable one to determine the necessity for surgery. The beginning of resolution can often be determined, as can also the continuance of cellular destruction as it may approach the middle cranial fossa or the sinus. Surgical interference would not be indicated in the former, but is definitely suggested in the latter. The ray is also of much importance to the operator in showing the position of the sinus.

When an acute exacerbation develops in the presence of a chronic tympano-mastoiditis, surgical intervention is indicated. In my experience the greater number of intracranial complications, more especially brain abscess, arise from this intermittent type of disease.

Primary acute mastoiditis is not infrequently referred to as a separate entity. This type of mastoiditis must be extremely rare, even if we include in this classification the few cases resulting from trauma. Unquestionably surgical mastoiditis does develop in the presence of a more or less normal tympanic cavity. My belief is that the middle ear is first involved in the usual way, via the Eustachian tube, but eventually recovers itself, whereas the mastoid infection slowly progresses, or at least remains latent for a time, finally showing symptoms of surgical mastoiditis in the presence of a reasonably normal tympanic cavity.

Briefly, then, the need for mastoidectomy cannot be governed by time as measured in days or weeks, but in the final analysis must be decided upon in accordance with pathologic changes, as presented in individual cases.

Recent Progress in the Treatment of Pulmonary Tuberculosis[1]

BY A. J. COHEN, M.D.

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In reviewing the development of the modern treatment of pulmonary tuberculosis, it is interesting to note what stupendous changes have occurred in the last fifteen years in all forms of human endeavor. The automobile has almost supplanted the horse as a motive power. The speed of our railroads has been doubled. Our mail is carried in aeroplanes from one State to another, and the radio has almost supplanted the phonograph. Ships communicate with each other on the open seas within a radius of hundreds of miles, by wireless telephony and telegraphy. The cost of living has more than doubled, and our methods of living have been revolutionized. The geography of the world has changed. Powerful nations have become weaklings, and weak and tottering nations have suddenly assumed leadership in world politics. Bolshevism has become the terror of nations and bootlegging an American institution. Mighty monarchs have fallen and in their places unknown men have arisen, and everywhere in every part of the earth vast epochal changes have occurred in the past fifteen years.

In medicine, as in everything else, tremendous developments have taken place in this brief period. Typhoid fever, which used to take its toll annually in the thousands, has now become a rare disease. The Dick test and immunization against scarlet fever bids fair to wipe that scourge from the face of the earth; the immunization against hay-fever and allergic asthma has proven successful in a fair proportion of cases and has reduced suffering and disability in this class of diseases in a most gratifying manner. The discovery of insulin has made the treatment of diabetes a simple matter, and undoubtedly will be the means of saving thousands of lives annually. The bronchoscope, which was looked upon as a toy in the hands of a wizard fifteen years ago, has now become a necessary instrument not only for the removal of foreign bodies from the air-passages, but for the successful treatment of many forms of pulmonary suppuration. Any hospital that has not to-day a bronchoscopic clinic is not considered modern or efficient. The *x*-ray machine, which fifteen years ago was still in its experimental stage, has now become part and parcel of the equipment of every hospital and dispensary. The recent developments in biochemistry have made the diagnosis and treatment in some of the most obscure and intractable diseases simple and effective. The invention of the fluoroscope, the electrocardiograph, the polygraph, the colorimeter, the bronchoscope, the thoracoscope, and a host of other instruments of precision, has wrought changes and solved puzzling problems that have revolutionized medicine and surgery.

In tuberculosis, as in general medicine, tremendous changes have occurred in the past fifteen years. The sanatorium of fifteen years ago and the sanatorium of to-day are just as different as the railroad coach of that time is to that of to-day. They are just as different as the methods of travel and of communication were then and are now. Fifteen years ago the sanatorium consisted of a place in the country, where people lived in unheated wooden huts, were fed on milk and eggs, and were given work to do, which was then thought an essential part of the treatment. Artificial pneumothorax was still considered an experimental and dangerous procedure. The value of the *x*-ray in tuberculosis was very much mooted; occupational therapy had not been introduced—that came after the war. The laboratory did just routine urine and sputum examinations. Blood chemistry was still an academic question. The Wassermann test was being discussed, but its true value had not yet been ascertained. The

[1]From material of the Eagleville Sanatorium, Eagleville, Pennsylvania. Read before the Section on General Medicine, College of Physicians, March 1, 1926.

quartz lamp for the administration of artificial heliotherapy was unheard of, and a half-dozen courageous and heroic men were struggling abroad in an endeavor to devise a surgical method of attacking this serious disease.

The sanatorium was so constructed that only 25 per cent of the patients had accommodations for bed treatment. Seventy-five per cent had to take care of themselves in primitive, cold, uncomfortable shacks. The average bed period was two to four weeks, and the average length of stay was from three to four months. Most sanatoria discharged their patients at the end of six months, no matter what condition the patients were in.

Only the incipient cases were sent to a sanatorium, and these comprised from ten to thirty per cent of the applicants. Very little was done for the moderately advanced, and nothing at all was done for the far advanced cases. These were left to drift until they terminated their miserable existence within a year or two, and worse still, were permitted to infect untold numbers with the germs of their disease.

To-day the sanatorium is so constructed that 75 per cent of its capacity is devoted to bed patients, and only 25 per cent to the ambulant type. Patients are kept in bed from six months to one and a half years, and they stay at the sanatorium from one to three years. The newer buildings are fire-proof, are heated, and are equipped with every device to make them comfortable, homelike, and esthetic in appearance. And exercise is given only under the strictest supervision during the convalescent period. Artificial pneumothorax is performed in about 25 per cent of the cases, and heliotherapy is administered to a large proportion of the cases. All patients are routinely *x*-rayed upon admission and at frequent intervals during their stay, and the laboratory is busily employed with the newer tests aiding in the diagnosis and treatment of the cases. Pulmonary surgery, though not yet very popular in this country, is being looked upon now with more favor, and the literature is beginning to show evidences of the use of this therapeutic measure, in a large proportion of cases in various parts of the country.

The modern sanatorium, in addition to having certain climatic advantages, has become a highly organized, extremely specialized hospital, both as to staff and equipment; and it must be so manned and equipped as to be able to meet every sort of medical and surgical contingency that may arise in the course of the treatment of a case of pulmonary tuberculosis.

Gravesen[1] of Copenhagen says that the recent developments in the treatment of pulmonary tuberculosis "necessitate the introduction of some hospital-like conditions into the sanatorium, and it is evident that such changes cannot take place without overturning some of the traditions regarding the lines on which sanatorium treatment has hitherto been carried out. There is at present an impelling influence at work to produce such a change, not only with regard to surgical intervention, but as well to other methods of active therapy, which will remodel the generally accepted scheme of sanatorium life."

The recent reports of the various sanatoria show at a glance that with the newer methods of treatment, forty-five to fifty per cent of the moderately advanced cases are cured and a reasonable proportion of the advanced cases are restored to useful life.

To illustrate the kind of treatment that patients receive nowadays, I will, with your permission, cite one case that was recently discharged from the Eagleville Sanatorium, disease arrested—a young girl, eleven years of age, who was admitted to the private department in September, 1923. She had a large cavity in one lung; she had intestinal tuberculosis; she could not eat without severe abdominal pain; she vomited daily and suffered from diarrhea. Her temperature ranged from subnormal in the morning up to 101°, 102°, and 103° in the afternoon. She was emaciated in the extreme; her teeth were carious; the cervical glands in her neck were enlarged. She was kept in bed on the open porch forty-three days,

[1]Gravesen, Johannes: Pulmonary Tuberculosis (Surgical Treatment), page 145.

when it was decided to induce artificial pneumothorax. On the forty-sixth day the first injection of gas was attempted. We made five unsuccessful attempts to find a free pleural space before we finally succeeded. From that time on, at intervals of one, two, and three weeks, she got gas forty-six times. During the course of the treatment she developed an effusion. She was aspirated seventeen times, and in all 4280 cubic centimeters of fluid were removed. The fluid was positive for tubercle bacilli both by direct smear examination and by guinea-pig inoculation. She was *x*-rayed sixteen times; her sputum and urine were examined innumerable times; she had seventeen intravenous injections of calcium chloride for her abdominal tuberculosis; she had 1127 treatments with the quartz lamp for her abdominal and glandular condition. She had several teeth extracted and the other teeth were put in good condition. She was given therapeutic *x*-ray treatments for the tubercular adenitis. She was in bed eighteen months. She stayed at the sanatorium two years and six days, and upon discharge she was above normal in weight; her temperature had been normal for months; she had no cough; her digestion was good; she looked the picture of health, and she has remained in good health since. Fifteen years ago this sort of case would have been denied admission to a sanatorium. To-day there are at Eagleville a half-dozen or more just such cases, and the results attained in these are most gratifying.

Some Points of Contact of Otolaryngology with Other Fields of Medicine[1]

BY BENJAMIN H. SHUSTER, M.D.

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I thought that it would be interesting to devote the few minutes allotted to me to discuss some points in otolaryngology which are of equal importance to men doing work in other fields of medicine. This, I believe, will not only stimulate discussion of experiences similar in nature, but will tend to accentuate the ramifications which exist between one department of medicine and another. It would also recall to our memories a fact which occasionally many of us show a dangerous tendency to forget, and that is, that we are physicians first and specialists second. This latter fact, if we could only keep it in mind, should serve to enhance our interest, to a certain extent, in each other's work.

If I were to be asked what is the most important thing about otolaryngology that one should know, I should say without hesitation that there is one outstanding thing which surpasses all others in importance, and that is the ability to make an examination of the organs concerned. I say this because the examination of these organs is somewhat difficult and requires some practice, as all examinations are made by reflected light through small orifices, and other difficulties are encountered, such as gagging, or having to interpret from inverted pictures as in a laryngeal mirror. However, there is the advantage that once one has mastered the art of making an examination, the interpretation of the findings is comparatively easy. This is unlike the making of a chest or abdominal examination, which is comparatively easy, but the interpretation after the examination is made is not always an open book even to the most experienced.

Aside from the usefulness of making an ear, nose and throat examination, some clinical and pathological knowledge is re-

[1]Read before the Medical League, Philadelphia, April, 1926.

quired. Let us take, for an example, a roentgenologist who photographs a patient with sinusitis or mastoiditis; the value of his examination and interpretation is in direct ratio to the amount of clinical, anatomical and pathological knowledge he possesses about these structures. Even if the clinician himself were to try to interpret the plates, and in most cases he is not competent to do so, the picture itself would be worthless unless it were taken from an angle which would best bring out the structures about which information is desired. Let me take for an example a case in which fracture of the skull was suspected and a thorough roentgenographic study was made without successfully locating the fracture. This patient fell into a ditch, and when he was recovered the most striking symptom of which he complained was a marked impairment of vision. In order to explain the visual defect on the basis of injury to the base of the skull, these *x*-ray studies were made, but, as I mentioned, without locating the fracture. There also existed a facial paralysis and a marked deafness since the injury, and because of the deafness he was referred to me for an ear examination. To me the picture of deafness and facial paralysis pointed to a location where both nerves involved are close together, at the petrous portion of the temporal bone near the internal auditory meatus. The Barany tests confirmed my suspicion of an interrupted eighth nerve. I asked the roentgenologist to re-ray the patient and give particular attention to the petrous portion of the temporal bone as is done in a mastoid picture. This he did, with the result of finding a fracture in that region. Now, had not the roentgenologist overlooked this clinical picture he would have found the fracture at the first examination.

This shows that an *x*-ray man is not a mere photographer; in fact he is even a poor photographer unless his work is supported by a great deal of clinical knowledge in practically all domains of medicine. There is probably not a specialist whose clinical knowledge should necessarily be as broad as that of the roentgenologist.

The Internist.—The internist has much to look for in an examination of the ear, nose, and throat. Let us pass over with the mere mention of the question of focal infection in the tonsils and sinuses. This is too well known to need much discussion, and I for one, as a laryngologist, stand ready to forgive any internist for stepping into my field by using a tongue depressor, nasal speculum, or a transilluminator. I think we will all agree that referring a patient from one physician to another for a minor examination is too expensive for the average patient and can be overdone to the point of appearing ridiculous. To refer a patient for some work to be done where special experience is required is one thing, and to make a simple examination for the purpose of diagnosis is another, and that is why I feel so strongly about every man being acquainted with many facts in another man's field, particularly those which would be helpful in making a diagnosis. After all, the patient is one organism whose parts work in unison with each other, specialists notwithstanding.

Let me mention some symptoms which may impel an internist to make an otolaryngologic examination, or, perhaps, an otolaryngologist will be forced to suspect a general condition away from the field of trouble. I recall one case of epistaxis. The patient was an elderly man who suddenly developed a nosebleed. He went to two different hospitals in the course of two days, and each time his nose was packed and he was sent home, only to return for more packing, as the bleeding was only temporarily controlled. I was called to see the man, because of the fact that I, as a nose and throat man, should be more able to cope with a nasal hemorrhage. I also packed the nose, and I must confess I committed the crime of feeling the man's pulse. His pulse was begging for recognition; it needed no clever clinician to recognize the bounding pulse of a high blood-pressure. Instead of sending the man off again with the mere packing, I also had him go to bed and stay there, and in addition prescribed large doses of iodides to reduce his pressure, and his

nosebleed was controlled. You see, blood-pressure refuses to limit itself to the division of any one specialist, and all of us have to cope with it. The neurologist, the internist and the ophthalmologist meet it. In this connection I also recall when I was learning to do some eye work at the Wills Hospital, I tried to refract a man who had just come in from work and complained of his eyes going back on him for the last week or so. I could not, hard as I tried, correct his error of refraction, and when I made an ophthalmoscopic examination I found retinal hemorrhages. His blood-pressure was over 200. This being another example where this condition crops up unexpectedly.

Occasionally high blood-pressure may be responsible for headache, dizziness, and tinnitus, all of which may have been attempted to be explained by other causes, notably the ear, or sinusitis.

Cough is a symptom which at first glance appears to be purely a medical condition. After all medical treatment and examinations have failed, one may be rewarded by making a nose and throat examination and finding an enlarged lingual tonsil, an elongated uvula or a postnasal congestion, a sinus condition or even a plug of wax in the ear which produces coughing reflexly by irritating the branches of the vagus nerve which supply the external ear canal.

Hemorrhage from the throat may be quite an alarming symptom, making one suspicious of tuberculosis of the lung, but often one may find a ruptured varicose venule at the base of the tongue or in the lingual tonsil which has ruptured as a result of a severe cough. I recall a case of hemorrhage from the mouth which was quite obscure in its origin, and the source was revealed by a laryngologic examination. The patient was a young man who showed tendencies to bleeding through the mouth. Whether it was from the lungs or a hematemesis was the question to be decided. He had no signs of tuberculosis clinically nor roentgenologically, and cirrhosis of the liver was suspected. A laryngologic examination showed petechial hemorrhages from the upper part of the trachea. I do not now recall the exact cause, but I believe it was later found that the man had a 4+Wassermann reaction and there were probably some luetic ulcerations in his bronchial tree. Here the examination definitely ruled out the stomach or liver.

Hoarseness is a symptom which may be produced by conditions other than in the larynx itself. Recently during a visit to the tuberculosis department at the Philadelphia General Hospital, I recognized a man who is now a patient there, and whom I saw several years ago on account of hoarseness. At that time I saw a laryngitis which made me suspicious of tuberculosis, there being a congestion and swelling limited to the posterior part of the larynx and arytenoid cartilages. I then gave him instructions about taking some general care of his health and warned him against tuberculosis. I did not see him again until lately at the hospital. Perhaps had he the proper means or other requirements at the time the disease was in its infancy, he may have averted his disaster. At any rate, the observation of this condition so early speaks in favor of making such examinations by the internist for diagnostic purposes.

Another good reason for making a laryngeal examination in cases of hoarseness is the probability of finding some mediastinal condition causing a one-sided paralysis of a vocal cord, particularly on the left side. Such an examination may reveal the presence of an aneurism or other mediastinal condition pressing on the recurrent laryngeal nerve long before other clinical manifestations may be present.

Headache, as is well known, may be caused by certain types of nasal conditions such as deviated septum or sinusitis. This is so well understood that if anything at all should be said on this subject, it is probably a word of warning that all headaches are not caused by nasal conditions, and other causes should be thoroughly searched before the nose should be blamed entirely.

In obscure chest conditions it is always well to bear in mind that an *x*-ray may reveal a foreign body in the lung.

Lung abscesses and some cases of asthma

have been treated and relieved by local treatment through the bronchoscope, procedures worthy of trial.

As to the pediatrist, I can only say that all pediatrists do not consider their examination complete until the ear, nose and throat of their patients have been examined, and they will bear me out that the time is well spent. I would only like to mention the subject of otitis media in the exanthemata, chiefly measles and scarlet fever and diphtheria. While in the presence of slight involvement of the ears in other conditions, one may temporize a little about incising ear drums, but in these conditions it is not so practical to delay. When one considers the ravages made upon the ears by the above-named conditions, and if we only recall the gruesome picture of chronically discharging ears so frequently, the result of these diseases with the consequent intracranial complications like brain abscess, meningitis, etc., one feels that anything at all that can be done to prevent their becoming chronic should be done. I certainly feel that incising the ear drums early goes a long way toward diminishing the severity of the ear infection in these diseases.

The Gynecologist.—Even the gynecologist may find something of interest in the nose and throat. Particularly of interest is the presence of pelvic congestion which exists with nasal congestion, and *vice versa.* Occasionally one hears of a case of backache of pelvic congestion origin, as in dysmenorrhea, which has been relieved by treating the nasal mucosa with cocaine. The particular areas in question are the inferior turbinates and middle turbinates. As further points in this interesting relationship, I might mention that some men have been able to ease labor pains by cocainizing these areas; also reports have been made of abortions following cauterizing of the turbinal bones. I have had no personal experience which would corroborate or disprove the latter facts.

Syphilis is a disease which every one meets, and yet it is interesting to note that very often its presence is detected in the nose and throat before it has given any inkling of its presence in other parts of the body.

The Neurologist.—The services of the neurologist are demanded by the otologist during most trying and serious times. Intracranial complications of otitic origin are not uncommon; operations for the relief of such conditions are often urgent and no time should be wasted. The otologist could not be expected to be so well qualified, nor could he be so thoroughly trained in the localization of brain lesions, as the neurologist. The otologist, therefore, depends a great deal upon the neurologist to help him make a diagnosis and locate the lesion to be relieved. This confidence placed in the neurologist's hands by the otologist calls for special effort on the part of the former to be able to help the latter. By this I mean that the neurologist should make every effort to understand the pathology of brain lesions caused by the ear, understand their clinical course, sequence of symptoms from an otological standpoint, in order that he may be better able to interpret from that angle.

As an illustration, let me cite an instance or two wherein the difference in opinion between the neurologist and otologist delayed operation and valuable time was lost. One case was that of brain abscess which for about a month I insisted was a case of temporosphenoidal abscess of otitic origin, and against me stood the opinion of some very eminent neurologists that the case was one of a localized basal meningitis. It was not till there developed a swelling on the side of the patient's head which they thought to be an osteomyelitis, but which later proved to be the pointing outward of the brain abscess, did they agree to allow the otologist in charge to operate, with the result of finding an abscess containing about two ounces of pus. They looked at the patient from a neurological standpoint, and found certain symptoms and signs which they interpreted as being caused by a lesion in the smallest possible area that could produce those neurological signs. To my mind they disregarded the clinical course and sequence of symptoms as they occurred,

which could only be grasped when the patient is viewed from an otologist's standpoint.

It is here worthy of note that the neurologists are not even definitely agreed as to what constitutes a certain neurological sign, particularly when that sign is not well marked. As an instance in this case just mentioned, one of the points of contention was, which side of the face was slightly paralyzed. I maintained for one side, and they were sure it was the other. This alone would upset a diagnosis. In one case of mine, one of temporosphenoidal abscess, at post-mortem, the side suspected by the neurologist was proven to be negative. Here, again, one of the points of contention was whether the limbs were spastic on one side as compared with the other, or was the one less spastic normal, or was it flaccid as compared with the seemingly spastic side? It seems to me that there should be some definite agreement that would make the interpretation of these signs more uniform and definite.

In one of my cases which was quite obscure from a diagnostic standpoint, the neurologist was emphatically against a diagnosis of brain abscess to the very minute of operation, when I tapped a large temporosphenoidal abscess. In this case, while it showed meningeal symptoms, I diagnosed a brain abscess from the slowly oncoming paralysis on one side first appearing on the face, then went to the arm and to the leg. There were no irritation symptoms which would point to a cortical lesion, which finally would proceed to the destruction of the cortical area. I took it therefore for a subcortical lesion involving gradually the projection fibers in that particular locality, which it did. The neurologist looked at it from the point of complete paralysis, which interrupted the fibers at the base of the brain. This seems to me a less likely thing to occur in such sequence as described than with a subcortical lesion. This is particularly emphasized in the presence of an otitic etiology.

This does not mean that the neurologists are always wrong, as in one case which was taken for an apoplexy into the internal capsule by the otologists, presumably because we could not establish a sequence of that sort; it was definitely diagnosed a brain abscess by the neurologists, and was found in that region.

But all of this goes to show that while it is the duty of the otologist to understand some neurology, it is equally as important for the neurologist to understand some otology, and between the two much can be done to establish a diagnosis earlier in these serious conditions.

There is another department in otology with which the neurologist should be familiar, or perhaps understand as thoroughly as the otologist, and that is the subject of neuro-otology. These tests are frequently helpful in establishing obscure intracranial diagnosis; and often the information obtained by one is incomplete without that of the other. In fact, the subject should be considered a common field for study by both specialists.

Lastly, but not least, I wish to say a few words about the very close relationship which exists between otolaryngology and ophthalmology. In this respect it is merely necessary to point out the close anatomic relationship between the sinuses and the orbit and the optic nerve to make it clear that the orbit and its contents are surrounded by a veritable field of dynamite. The intermingling of the circulatory network, the contiguity of tissue and the nasolacrimal duct which terminates in the nose are all fruitful sources of trouble for the eye. Not only can the cause of ocular trouble be of the evident and explosive types as a frank sinusitis with immediate extension to the orbit with swelling and blindness, but the more insidious and no less disastrous troubles are numerous.

Frequently, persistent inflammatory conditions of the eye like conjunctivitis, keratitis, are improved only after nasal treatment is given to relieve a low-grade ethmoiditis. Edema about the orbit may come and go, and reappear only to foreshadow a more severe form of cellulitis due to some sinus condition as yet undetected.

Nor is it imperative that there exist a frank form of sinusitis to explain certain ocular conditions like optic neuritis or papilloedema or sudden onset of blindness. Sometimes the rhinologist sends his patient to the ophthalmologist to look for these findings when there is only the slightest suspicion of sinusitis present, and in this way corroborates his diagnosis.

There is frequent opportunity for the ophthalmologist and rhinologist to interchange opinions about patients. They therefore send patients to each other for examination, so I think it is timely to say a few words about what sort of examinations these workers expect of each other.

The ophthalmologist sends his patient chiefly to establish the presence or absence of nasal or sinus disease. After investigation, the rhinologist either finds trouble or not and reports on it, and that ends the transaction. There is one thing to be remembered, however, and that is that sinus disease may exist without being detected by our present means of diagnosis. From the ophthalmologist's standpoint, this is particularly interesting concerning the sphenoid sinus. A number of cases of sudden onset of blindness have been relieved by operating on an apparently normal sphenoid. The fields of vision in such cases are often helpful, by finding an enlargement of the blind spot for white and colors, as has been pointed out by Van Der Hoeve.

The otolaryngologist sends his patient for an eye examination, often not stating exactly what he expects the ophthalmologist to do. An eye-ground examination of course is the most common procedure sought. In most instances this examination is required in cases suspicious of intracranial trouble. In sinus thrombosis he wishes to know whether there is a greater fulness of the vessels on the suspected side. In suspected brain abscess he would like to know of the existence of papilloedema or choked disc to denote intracranial pressure. There is one examination which is not being done as frequently as it should be, and that is a visual field study, and the eye man would do well to make such studies even without a request. Much can be learned of value in such an examination. The finding of the central scotoma to white and colors above mentioned is one instance where an unsuspected case of sinusitis may be discovered.

Recently Eagleton has described a visual field study of much importance in the early diagnosis of brain abscess. This consists of finding indentations in the field of vision here and there, which may disappear at the next examination and reappear at a subsequent one. This is explained by the fact that in the presence of brain abscess there is a surrounding encephalitis with edema. This appears and disappears in various places and involves fibers of the optic tract here and there giving these visual field indentations. This has been found often enough and early in the disease to justify frequent visual field studies. It is evident that such studies are of greater value than eye-ground examinations, as the findings would lead one to make an earlier diagnosis.

Nystagmus is another question which should be studied by ophthalmologist and otolaryngologist together, chiefly for the purpose of differentiating an ocular nystagmus from the more serious vestibular nystagmus which may be the sign of grave intracranial trouble. The presence of a slow and quick component, its increase when the eyes are turned in the direction of the quick component, its decrease when turned in the direction of the slow component, its absolute independence of the patient's voluntary control, its association with vertigo and falling in the plane of the nystagmus, are all points which should put one on guard for serious trouble, as they distinguish the vestibular type of nystagmus.

Ocular muscle paresis or paralysis when met by the eye man should make him think of the ear, as by the Barany tests, which will force the motion of these muscles, if they can only move, he can distinguish a complete paralysis from a muscular immobility probably as a result of inflammation through a contiguous sinus.

The sudden onset of a sixth nerve paraly-

sis in conjunction with a fifth nerve neuralgia should promptly be recognized as a Gradenigo syndrome, and the presence of some ear condition should be sought to explain its appearance. This condition is usually brought about by a localized meningitis at the petrous portion of the temporal bone, and is of otitic origin; it should be dealt with promptly from the ear standpoint, as delay by treatment of the eye condition may be fatal.

Perhaps I could search and find other important relations between otolaryngology and other fields which I did not mention as well as in the departments above related, but in this brief paper I have emphasized the more important connections which I have found of great value.

Practical Points on Ear, Nose, and Throat Conditions for the General Practitioner[1]

BY DR. MORRIS A. WEINSTEIN

Philadelphia, Pa.

In the time allotted me I can hardly cover more than the most salient points on this subject, and if I can impress upon you the important facts I shall feel that my efforts are not in vain.

The most important and most common nose and throat condition encountered is the acute nasal catarrh or common cold—a condition seen in every-day practice—which occurs most often in the spring and fall of the year, and yet might be contracted, I should say, in any season.

A common cold *per se* is not a serious malady, but the complications arising therefrom may make the case one of some concern. The causes of colds are:

1. Exposure to cold and damp weather.
2. Exposure to irritant chemicals.
3. Disturbance of the gastrointestinal tract.
4. Deflection of the septum.
5. Sinusitis (acute exacerbations).
6. Vasomotor disturbance.
7. Syphilis in the new-born, etc.

The symptoms as you know them from your personal experience are fulness of the head, stuffiness of the nose, headache, difficulty in breathing, sneezing, running of the eyes and nose, lassitude, indisposition; there may or may not be a rise in temperature, coated tongue, etc.

Later on the nasal secretion becomes mucoid, and in the last stage thick muco-pus is blown from the nasal chambers, followed by a gradual diminution of the symptoms. At the end of about one week to ten days the condition is relieved, providing, however, no complications arise.

Treatment: Purge, aspirin gr. 3, phenacetin gr. 1, codeine gr. ⅛, every three to four hours; hot foot-bath; rest in bed; washing out the nose with a warm saline solution once every three to four hours.

Complications of Acute Colds: Sinusitis; laryngitis; tracheitis; bronchitis; acute otitis media.

Intense headache characterizes sinus disease.

Frontal sinusitis is always associated with a vacuum headache located over the supra-orbital notch, radiating to the vertex, and extreme tenderness to pressure under the superciliary ridge near the inner canthus of the eye. The pain is more intense at night in the recumbent posture because of poor drainage, and is relieved after the patient is up a while.

Maxillary sinusitis: pain over the supra-orbital notch, aggravated after the patient is up several hours, because of the position of the ostium of the antrum, and blocked drainage.

In ethmoiditis the pain is constant, dull,

[1]Read before the meeting of the Ex-Resident Association of the Mount Sinai Hospital, December 1, 1926.

and localized mainly over the parietal region. It is not relieved either in the erect or recumbent position.

In sphenoiditis the pain is dull, continuous, and located mostly in the occipital region, and at times there is extreme tenderness over the mastoid, which is reflex.

Vertigo, mental and eye symptoms may be present in any sinus condition, but more so in sphenoid involvement.

Diagnosis of Sinus Diseases.—Ascertain the number of handkerchiefs used every day, the character of the discharge, type of headache, and time of day it occurs.

The general constitutional symptoms are the same in all sinuses involved: malaise, lassitude, anorexia, fever, may or may not be present. In influenza the discharge is mostly bloody, and inflammation of the sinuses is the rule. In children a continuous bloody nasal secretion might be due to a foreign body or diphtheria in the nose.

If after ten days or two weeks following an acute nasal catarrh the headache and the stuffiness in the nose increase, if there has not been much improvement in the patient's general condition, and if on examination of the nose you find the mucosa of the nasal chambers much engorged, with very little space between the turbinates and the septum, with possible free pus in the nose or nasopharynx, you are dealing with a sinus condition.

One must remember that the absence of free pus does not rule out a sinusitis, because a swollen mucous membrane will give a non-aerating type of sinusitis, and present the same symptoms as pus.

Treatment: Ventilation and drainage. Free purgation, light diet, hot mustard footbath, shrinking the nasal mucosa with a weak solution of cocaine, light suction, postural drainage, irrigation of the nose with mild alkaline solution, followed by a nasal oil spray.

Chronic sinusitis will lead to hypertrophy of the mucosa, followed eventually by a hyperplasia of same with its end results, polyps, degeneration, and atrophy. This leads to an increase of space in the nasal chambers, to destruction of the surface membrane, and to a change from ciliated to squamous epithelium, with loss of resistance, which predisposes to further bacterial invasion, putrefactive changes, crust formation, anosmia, cacosmia—the classical symptoms of an atrophic rhinitis.

Acute otitis media may come on during or after an attack of nasal catarrh, when the infection enters by way of the Eustachian tube into the middle ear, and sets up an acute inflammation. It begins with pain, which increases in intensity, becomes pulsating in character, and keeps the patient awake. When the drum is examined, you see no bulging as yet, but a marked congestion, the details begin to disappear, the hearing is impaired, and in a day or so you have a bulging drum, which may perforate spontaneously, or must be incised. In every case of acute otitis you have in the beginning tenderness over the mastoid, yet this is not an acute mastoid, but rather the results of an accompanying engorgement of the mucosa lining the mastoid cells.

Treatment: If seen early, order instillation of warm pheno-glycerin solution of 5 per cent every few hours, calomel in small divided doses followed by a saline purge, rest in bed, and liquid diet. If the pain persists, and the drum is bulging, paracentesis is indicated, followed by warm boric acid irrigations, and pheno-glycerin, mercurochrome 2 per cent, argyrol 10 per cent, or acriflavine 1:500 instilled into the auditory canal.

Complications of Acute Otitis: Mastoiditis; furunculosis of the external auditory canal; meningitis; sinus thrombosis.

Mastoiditis can be suspected if the pains in the ear increase, the discharge persists, the tenderness over the mastoid tip and antrum region continues or increases, when there is a drooping of the superior posterior canal wall; an *x*-ray examination of both mastoids for comparison may clear the diagnosis. There may or may not be a swelling of the soft tissues over the body of the mastoid bone.

Treatment: Operation is indicated if the patient has severe headaches, drooping

of the upper posterior canal wall, tender mastoid, increased white cell count, and confirmatory *x*-ray.

Persistent hoarseness should make one suspicious of malignancy, T. B. or syphilis of the larynx, as well as an abuse of the voice.

Vincent's angina, diphtheria, syphilis and T. B. of the throat are conditions often seen by the general practitioner, and are at times difficult to diagnose without the aid of the laboratory.

Differential Diagnosis. — In Vincent's angina the ulcerations may be found on the buccal mucous membrane, pillars, tonsils, or gums. The ulcerations are covered with a slough which is readily wiped off, the surface bleeds easily, the patient has extreme pain on swallowing, and a smear will show the spirillum and fusiform bacillus.

Diphtheria shows exudate over the tonsils, pharyngeal wall, uvula, associated as a rule with glandular enlargement, foul-smelling odor, and a smear shows the Klebs-Loeffler bacillus.

Syphilis may show mucous patches over the buccal mucous membrane, gums, and anterior pillars, or ulcerations on the tonsils. The ulceration is covered with a grayish-white slough, which does not bleed when wiped off, painless no matter how extensive the destruction. A smear might show the spirocheta, and the blood a positive Wassermann.

In T. B. of the throat the ulcerations are very deep, though not large, but very painful. The area around the ulceration is surrounded by an inflammatory zone extending out for a considerable distance. The condition is rarely primary, usually secondary to T. B. in the lungs. A smear from the throat may show the tubercle bacilli, or we might have to resort to guinea-pig injections.

1309 Spruce St.

Evolution of Light Therapy[1]

BY J. D. GIBSON, M.D., Denver, Colo.

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The sun has been regarded since the dawn of history as a great factor in the well-being of the world. It was worshiped by the ancients as the great giver of life, sustenance and health. In fact sunlight is the great palpable gift to the world and also to man.

Evolution has brought many changes, not only in the affairs of the world, but also in the life of man.

When we consider, not many years ago, even within our own memory, the only artificial light known were candles, kerosene lamps, lights from fagots or pine knots, etc., we can begin to appreciate the vast change that has come to us in the great electric lighting systems of the present day. The evolution from the old tallow candle to the electric arc and incandescent lights has been the greatest change for good of this or any other age.

The author thinks we have never appreciated or realized the benefits already received from the ordinary electric light, as a great factor in improving the health of the world, in a general way, to say nothing of the possibilities of the future. When we remember the great reduction in the death-rate per 100,000 of the population of this country in the last thirty-five years, we must begin to realize that something has happened. While sanitation, education, and improvements along the regular medicinal and surgical lines have accomplished much, in the opinion of the writer these agencies cannot fully account for this great change in the well-being of our people, the tremendous saving of life and the greatly increased

[1]Read before the Denver Society of Physiotherapy.

longevity being enjoyed at the present time by the human race. The writer is inclined to believe that the great decrease of nearly forty per cent in the death-rate from 1895 to 1920 has been influenced largely by the introduction of an almost universal electric lighting system.

We think the vital statistics will demonstrate comparatively that the greatest reduction in the death-rates will be found in the cities and towns that have most universally made use of the electric lighting system. The better lighting exposes dirt and filth, making the housewife more careful and cleanly with her home, thus lessening disease and infection to the family. The arc lights and splendid incandescent globes in almost universal use at the present time have a stimulating effect upon the skin and especially upon the sympathetic nerve endings, more or less affecting the secretions of most of the organs of the body. In other words, these modern electric lamps largely increase the sunlight hours of the day upon the body, thus increasing the resistance of the body to infection and all manner of disease.

We digress here to call attention to the fact that there has been another great fall in the mortality rate since 1920, which the writer thinks is due in part to the great increase in the wireless broadcasting vibrations of the ether at the present time. These wireless, or Hertzien, waves originate from a unidirectional current and produce more or less chemical or cell changes, thus still further energizing imperceptibly all cells with which they come in contact. In the opinion of the author the wireless waves are bound to have an influence, probably for good, on the destiny of the race; thus becoming an additional factor in aiding in the last drop in the mortality rate we are enjoying at the present time.

The arc and incandescent lights were scarcely perfected before physicians and physicists began experimenting with them in the treatment of disease.

Finsen abroad, and Morton, Cleaves, Kellog, Snow and Titus in this country, were among the first and great pioneers in the use of light as a therapeutic agent. Finsen seemed to be the first to endeavor to separate the various spectral bundles of the sun's rays for their different healing effects, and so successful was he in his efforts that his name has become indelibly associated with the violet or Finsen's rays. His researches were first published in 1893. He was the first to use the water-cooled violet rays from the arc light, and was very successful in their use, so that his name will forever be associated with the subject of lupus.

From 1895 to 1905 might be called the "electric bath age." Dr. Kellogg of Battle Creek was supposed to be the champion of the incandescent bath, while Dr. Margaret Cleaves of New York never forgot to champion the arc light bath, especially in tuberculosis. It was Margaret Cleaves, M.D., who gave the writer his first idea of treating tuberculosis by means of radiations with the old arc light in 1898, and claiming its utility due to the large amount of violet and ultra-violet vibrations in the arc light spectra. She made such an impression of its usefulness with the writer that he has used some form of radiant energy in treating pulmonary tuberculosis almost daily from 1898 to the present time.

The electric cabinet baths, so common in the early days, have now been relegated almost to institutional work entirely.

The Finsen water-cooled lamp was never very popular in this country, but later there was developed the water-cooled and air-cooled mercury quartz lamps, giving an abundance of ultra and violet radiations, which have become very popular with the profession at the present time. The manufacturers and physicists have worked out to a very great degree of perfection the usefulness of these lamps, and have also gone into the different effects very carefully of the various wave lengths of the near and far ultra-violet vibrations. Certain wave lengths have been positively proven by Coblenz, Pacini and others as absolutely bactericidal, destroying colon and other bacilli definitely and quickly in cultures.

This is also demonstrated in the treatment of erysipelas, eczema, and other local skin infections.

The constitutional energizing, upbuilding effect of the violet rays is very marked, and probably acts through the nerve endings in the chorionic layer of the skin in a reflex wave upon the internal organs, or otherwise. It has been definitely proven that these electric waves, properly applied, will increase the deposit and stability of calcium and phosphorus in the tissues, proving almost, if not quite, a specific in such diseases as rickets, etc.

In fact, in this day of radiations there are few diseases of microbic, traumatic, atonic or atrophic infections, particularly of superficial conditions, but what some form of radiation can be used with advantage for the improvement of the condition of patients.

The great amount of new and specific data, brought forward in late investigations of all conditions and effects of the ultra-violet rays, shows more clearly to us why and how the great discovery of the age, the Roentgen ray, accomplishes its miraculous results in many and various pathological conditions.

The Roentgen rays and radium have the shortest wave length known. The Roentgen rays demand the highest voltage as well as the greatest resistance for their production of any known rays. There is a wide range of wave lengths in the production of *x*-rays, ranging from the ultra-violet to inconceivable short and rapid vibrations almost approaching radium. Their penetrative power, or force, can accurately and easily be nominated by the number of volts employed with the ampere output of tube considered.

Roentgen rays are composed of streams or bundles, we might say, of negative electrons—that is, negative charges of electricity—which under proper voltage are able to penetrate all substances. This power of penetration makes of them a very unique therapeutic agent. Almost every medical agent relieves the pathological conditions by secondary or reflex action, while with the *x*-ray it is largely direct or primary in its effects on pathological cell structure.

The writer would call attention again to the stream of electrons pounded forth from the *x*-ray tube in action, and also to the fact that these electrons are electronegative in character, in distinction from the ion. It has been demonstrated that almost all pathological cells, in the process of change from normal to disease, gradually lose their negative charge, and thus most diseased cells incline to a positive or acid reaction. In the normally balanced cell the outlining electrons have the capacity, by their electrical pull, to draw from the blood stream whatever elementary substance is needed for the nourishment and well-being of the cell. If this balance is lost it means the lessening of the electric tension and quantity also. The cells then may be able to attract or pull only the elements it does not need. For instance, the tension may be sufficient to pull Ca but not Fe, when it needs iron, but it has not the capacity to draw iron. Again, it may draw iron but cannot draw K, and it needs potash, and so on throughout the scale. Therefore the cell becomes poorly nourished with a weaker electronic pull, and more and more giving way to positive or ionic control and ultimate death of the cell or the involved molecule.

The diseased molecules, or cells, when in this condition of electronic loss and weakness should be flooded with a stream of negative electrons. Is it unreasonable to suppose the possibility of restoring the electrical balance of the cell to normalcy, thus strengthing or stimulating the alkaline negative predominance of the cells, by means of which restoration the cell is able again to draw its proper needs from the blood stream, and therefore return to normal functioning?

The Roentgen rays, as they enter the body, the deeper they penetrate the greater the resistance to be overcome, and naturally the rays before they are absorbed in the deep tissues become "slowed down" to a certain extent, with probably a lengthening of its wave length also. Therefore, when the primary *x*-ray beam is broken up, or sprangled, for absorption, it should have about the same qualities and characteristics

of the actinic or ultra-violet ray, upon superficial or surface conditions. Hence, one more of the primary effects of the *x*-ray upon the deeper tissues of the body is the deposit of actinic rays in the deeper pathological tissues with all their germicidal and physiologic stimulating phosphorus and calcium depositing, sun tanning effect.

Attention has been called to the fact that Coblentz, Pacini and Reyne have demonstrated the bactericidal powers of ultra-violet rays beyond a doubt in superficial conditions. Now if this hypothesis of the writer is correct, and the terminal effects of the primary *x*-ray beam are absorbed as an ultra-violet or actinic ray, which is capable of producing its bactericidal, skin-tanning effect upon the tissues in which it is absorbed, we can begin to grasp somewhat the future usefulness of the Roentgen rays in the treatment of various pathological conditions. As an illustration of this idea the author will explain further, using the theme "Pulmonary Tuberculosis," as he has had more experience in this subject than any other, but he suggests that the analogy be carried out in many other diseases, bacteriological and otherwise.

Pulmonary tuberculosis is a bacterial infectious disease, produced by the tubercle bacilli—a bacillus which, on account of its waxy coating, is peculiarly susceptible to sunlight and heat, but very resistant to chemical attack and most other germicides. Much is being written on the efficacy of ultra-violet light in the treatment of gland, skin and joint tuberculosis; in fact, for this purpose, it is being used to a great extent with much favorable comment. Many think it is even better than the natural sun effects, but there is much dissension when it comes to pulmonary tuberculosis. The same thing is true of heliotherapy. Pulmonary tuberculosis is usually a constitutional condition, and one beset by many complications, from various organic conditions as well as bacterial and nutritional defects. Also there is always a tendency to exacerbations, fever, hemorrhages, pleurisies, colds, tuberculous pneumonia, etc. These destroy the life of the patient. The vibrations of the *x*-ray in doses that reach and stimulate the natural and pathological processes in deep lung tissues to a moderate degree, have a soothing, ameliorating effect upon the patient, giving him a feeling of well-being, aid his nutrition, and have a decided effect upon the temperature and pulse. It can be used, or is not contraindicated, in the most acute and serious cases. If *x*-ray is absorbed into the infiltrated, fibrosing, germ-soaked lung tissues, as a "slowed-up *x*-ray," or ray changed into an ultra-violet ray, which is antiseptic, germicidal and also decidedly stimulating, it should change the weakened and diseased, positively charged cells to their normal electrical balance, or negative charge. The reactions which are thus developed can be easily controlled.

It seems to the author that a long step has been taken in the solution of the management of this disease, as we are enabled to restore the electrical balance to many diseased cells, and to increase their vigor and vitality, at the same time producing a bactericidal effect in an area where it is most needed. The author claims that an enormous production of large mononuclear leucocytes or lymphocytes results during this cell stimulation. These special lymphocytes seem to be "Nature's special scavengers" for the tubercle bacilli; hence the bacterial inhibition and final destruction of the bacilli are brought about by the small or stimulating doses of *x*-ray.

It is now an acknowledged fact that the highest authorities in tubercle investigation admit that stimulating doses of *x*-ray are the surest means of producing an increase of the lymphocytes in pulmonary tuberculosis, which the author has been claiming for fifteen years or more.

With this development taking place in the lung, we have a fine demonstration for the formation of "Ehrlich endless chain" hypothesis of infections with the production of antigens, or proteins, thrown into the blood stream from the weakened or killed bacilli, which forces the production of an antitoxic substance for their neutralization

and removal by the phagocytes, thus giving us, the author claims, a real autogenous vaccine for the tuberculous condition, which can be kept in active effect until the last bacillus is eliminated from the sputum in the great majority of cases, and in much shorter time than it can be accomplished without it; and giving such results, there is little danger of relapses, and the patient can look forward to a long and useful life.

Impotency, Sterility, and Psychopathology[1]

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The important relation of neuropsychiatry to impotency and sterility is not often realized, and is very often overlooked. As will be shown, these dysfunctions of sex are frequently dependent on the psychopathic or neurotic nature, whether of Occidental or Oriental type, and this may be one of Nature's methods of preventing social misfits from perpetuating their kind. Believers in eugenics are also beginning to realize the importance of operative sterilization of psychopathic individuals. But before these various angles of the subject can be discussed a few definitions must be given.

In the truest sense of the word, impotency implies inability to consummate the sexual act, and this inability may be due to organic or psychic causes. Sterility practically implies incapacity for fecundation. Copulation and even orgasm may be perfect, yet fecundation cannot occur because of the organic defect in one or both parties to the sexual act. Although both the male and female may be potentially fertile, they may be practically sterile because of their impotency.

Sterility and impotency may or may not be combined. Thus, as a consequence of removal of the testes the male may be entirely shorn of sexual desire, and is necessarily at the same time made incapable of producing the spermatozoa which are necessary for fecundating the ovum. On the other hand, the testes may be removed in some cases, and yet for a greater or less length of time the potency of the individual remains unimpaired. The retention of the power of copulation after castration was well recognized during the dynasties in China, for eunuchs from whom both testes and penis had been removed brought a much higher price in the market than those who had been merely castrated. It has been reported that a great many of the several thousand eunuchs who served the last Chinese dynasty were so mutilated, because it was recognized that individuals who are absolutely incapable of emitting spermatozoa may be perfectly potent. Such cases are an illustration of potency combined with sterility in the male.

The explanation of the continuance of the sex capacity after the person has sustained the loss of testes or ovaries is probably due to the fact that the genito-spinal and cerebral sex centers and sympathic nerve supply had matured before the loss of the secreting organs. But when either male or female is completely desexed prior to the completion of sex development, impotency invariably results. That sterility always follows castration in either sex at any age is self-evident.

The emotions, which are the foundation of mentality as shown in a former paper, have a more powerful influence over the functions of the genital organs than they have over any other functions in the body. No organs respond so quickly to this influence. The mind is a powerful factor in

[1]A paper read before the China Medical Association, September, 1926.

all cases of impotency, and psychic abnormalities are often at the base of sexual dysfunction. In China, as well as in Occidental countries, where sex instinct is not colored by the psyche, the sexual function is given its utmost play. The primitive emotions come into play, and inferior mentality, such as is found in imbeciles and idiots, which compose 3 in 10,000 of the Chinese population, is always accompanied by precocious sex function, both in the male and female, while the more highly organized minds produce impotency and in many cases consequent sterility. This is due to the fact that a sensitive sexual organization is part of the price man has paid for civilization. The more refined the organization of the human rule, the more likely he is to suffer from impotency due to psychic impressions. Laying aside organic causes, the savage and the lower animals do not experience impotency. The human male who can perform the sexual act under any and all environmental conditions probably is an example of atavism or neuropsychic degeneracy. Also, the average female in her upward progress from the socially primitive to the civilized type, has become frigid or has developed a sexual neurodegeneracy, such as nymphomania, which may cause relative or complete infertility. She may also have a repression of sexual desire, through religious and other social inhibitions, but fortunately for the race many women allow their sexual passions to develop in response to the demands of the male element of society.

In dealing with a case of impotency or sterility it is of course important to make a thorough and complete physical examination, both gross and microscopic, of both parties in question. Drawing conclusions from abnormal findings in only one party may lead to erroneous results. Also, no examination is complete without a careful and perceiving examination into the psychic history of each mate and their marital relations. Any one of the following, or a combination of several, may be found to be the root of the trouble:

I. *Inherent conditions.*

(*a*) Consanguinity.

(*b*) Individual incompatibility: (1) Physical: abnormal sex organs. (2) Psychic: psychopathic character.

(*c*) Extreme youth or underdevelopment.

(*d*) Senility.

(*e*) Aspermatogenesis.

II. *Acquired conditions.*

A. Psychic:

(*a*) Fear of consequences, notably of pregnancy or of contracting disease.

(*b*) Aversion for the sexual act.

(*c*) Disgust for the partner in the act.

(*d*) Painful conjugation: (1) In the female: nymphomania and vaginismus. (2) In the male: spasmodic stricture and priapism.

(*e*) Anger.

(*f*) Jealousy.

(*g*) Psychic shock, before, during or soon after copulation.

B. Physical:

(*a*) Anemias and cachexias.

(*b*) Endocrine dysfunction.

(*c*) Narcotics.

(*d*) Alcoholism.

(*e*) Exhaustion.

(*f*) Toxemia from disease or absorption: (1) Immunity to spermatozoa. (2) Antagonism to spermatozoa.

(*g*) Infection.

(*h*) Abnormal growth or destruction of tissue.

The physical causes of impotency and sterility are fully discussed in most books on gynecology, so that this paper will make no further statement on this side of the subject, although the psychic relations will be gone into. It has been found that about one per cent of the general Chinese population are neuropsychiatric individuals, and in every case these individuals undoubtedly suffer from sexual dysfunction of psychic origin. A greater per cent than this of the Occidental in China are of neurotic temperament, and in every case the neurotic individual suffers from sex abnormalities. Thus it can be seen that sexology is of para-

mount importance to all branches of medicine and surgery.

Psychic impotency is the form that is most frequently seen, and is usually dependent upon causes of a purely mental or moral character, while the sexual organs, so far as can be determined by examination, may be apparently perfectly healthy. Individuals suffering from this form of impotency usually are of highly impressionable nervous temperament primarily, or have become so as a consequence of prudish upbringing or sexual excesses. This is as true with the Chinese as with Occidentals, for many Chinese families are as mock modest as the majority of Americans or Europeans.

Some men who apparently are perfectly healthy find themselves unable to perform the act of copulation as a consequence of a lack of confidence due to a recollection of early threats against sexual indiscretions and an exaggerated estimate of their effects. Ignorance of sexual physiology often is the foundation for this form of impotency. With some men failure to accomplish the act of sexual intercourse sometimes is due to their extraordinary vigor and the secretory activity of their sexual apparatus, which is concurrent with a highly strung nervous system. Individuals who have not attempted sexual intercourse until they have attained their majority frequently are troubled in this way.

It is surprising sometimes what a slight cause may result in the sudden and untimely development of impotency in the male. A disagreeable object, a jest out of place, indigestion, troubles in business, family jars, leucorrheal odors, preoccupation of mind, unusual surroundings, fatigue, a doubt whether the act can be completed, have all been known to result in the failure of coitus. Fear, or anxiety, is probably the most frequent cause of failure, especially with those who have had mawkish training. Being subject to emissions when not indulging in intercourse and knowing them to indicate relaxation and weakness, such men read pamphlets on the subject and thus further increase the fear of failure. Their minds continually dwell on the supposed mental decay and loss of manhood which arise from impure habits, and with this torturing their minds the first attempt at coitus necessarily ends unsuccessfully. The first failure is a sure precursor of other failures to follow, all due to the emotion of fear, and this continues and keeps up the impotency until relief is obtained from the wise counsel of a trusted physician. In connection with this temporary impotency the inevitable hourly concentration of the mind on the sex organs disorders the circulation, increases the irritation of the genitals, and if spermatorrhea has not manifested itself previously it will do so at this stage, as the result of this abnormal mental storm. Even in persons of vigorous health, impotency may result from fear. Impotency has been produced in a healthy man by a friend's recital of his own surprising failure, or by reading of abnormal sex case histories.

A woman may fulfil her physiological function without any subjective sexual satisfaction, for neither sexual desire nor orgasm are necessary for fecundity, and many married women of the better class, both Chinese and foreign, have stated that they lived passive sex lives, although some of them have had children. These are all cases of impotency, for sexual desire and orgasm must be experienced by both parties if copulation is to be considered successful and complete.

Various local conditions may prevent the female from having coitus, such as congenital or acquired malformations, disease, or imperfections of development as cause atresia of the vagina, with vaginismus; and of course in these rare cases the female is impotent as well as sterile. But where there is an absence of sexual desire or aversion to its performance, and no orgasm takes place, the woman is generally only impotent and is usually spoken of as being "frigid." Many women, as stated above, never experience the slightest degree of voluptuous excitement during coitus, and erroneously think they are not supposed to. Orgasm is necessary to the normal performance of

the sexual act in the female as well as in the male, and apparently assists conception by the correlation of the orgasm in the male. In the neurotic or neuropsychopathic individual true atresia may be simulated with its vaginismus, because of the pathological state of mind.

Marriage necessarily is experimental, for as a rule neither of the contracting parties has any means of knowing the true character of the other. The young Occidental man goes courting with his best behavior, in his best clothes. The young woman courted, not to be outdone at woman's own age, lays even greater stress upon externals. She puts on her prettiest gown and "company manners" and does her best to conceal not only her physical defects, but her mental and moral flaws. The Occidental method of courtship gives more freedom to the couple to learn to love and adjust to each other, while the Chinese system is to get married and then learn to love. Unfortunately love is usually blind, so that the Occidental and Chinese systems generally both lead to the same unhappy results, even though the idealists would have the public believe otherwise. After marriage both parties to the arrangement sooner or later become critical, unless they have made a happy mental and sexual adjustment. Marriage is a steady and intimate association which only compatibles can face without disaster. The rose tints of the premarital prospects or ideals become rather murky when incompatibility once becomes manifest.

The average man when indulging in coition gives very little consideration to the question of reciprocal pleasure in his wife. The average woman primarily entertains an aversion for sexual intercourse, which is both unesthetic and painful in the beginning, and she shrinks from it with maudlin modesty and physical fear. This condition of mind usually is by no means improved by the conduct of the husband, whose sole idea is to obtain gratification, irrespective of the feelings of his wife. For a time he is perfectly satisfied with his matrimonial relations because of their novelty, but as soon as this wears off he begins to recall past experiences, and finds fault with his wife for her lack of reciprocity. By this time, unfortunately, the disgust and dread of coitus that has been inspired by the thoughtlessness of the husband has become a part of the woman's very existence, and she usually is ever afterward impotent. It is by no means the sophisticated alone who is open to impeachment, for the inexperienced man often is more at fault, through ignorance, than the man of the world who, perhaps, has done more than he should toward his education in sexual matters.

The civilized world is beginning to realize the dominant part sex plays in the lives of mankind, and the part it plays in causing and perpetuating psychopathology. As has been pointed out, much abnormal thinking is connected with sex relations, and it has been found that maladjustments in coitus is one of the commonest causes of psychic upsets, in both Chinese and Occidentals. Sex instinct allowed to go uncurbed in the mentally inferior, perpetuates the same, while sex in the mentally superior but unstable personality breaks down the social organization by the creation of psychopathic individuals. Enlightened society is taking steps to combat the tragedy in either case, and it is time that the world took note of the fact. The population in China is increasing at a tremendous rate, and in many cases the persons who should be propagating their kind are unable to do so because of the factors mentioned above, while those who should be prevented from creating their likeness are breeding in multitudes.

The only way to handle the ever-increasing problem of the asocial being is by the elimination of the source. All psychopathic individuals should be sterilized, and this can be done without robbing the persons of their inalienable right of gratifying themselves sexually. China can never institutionalize all her psychopaths, but she could sterilize them and allow a certain number of them to work for their livelihood, while at the same time being sure that they would

have no progeny. The Chinese idea that every male must attempt to perpetuate the family name is working havoc in China. There have been cases reported where an incurable mental patient was taken away from a mission hospital in order to get married. It is general throughout China that a childless woman is despised, so even though a woman is mentally defective her relations always try to make it possible for her to propagate. It is not uncommon to find a childless wife being sent away by her husband to consort with another man until she becomes pregnant.

At the same time that the psychopathic persons are being dealt with, the neurotic and normal element of society should be educated in regulated sane sex living in order that such unfortunate conditions as impotency and psychic-sterility may be prevented, and eugenic principles may be put into action. Until that time the individual case must be cared for separately.

The mainstay of treatment in nervous impotency and psychic-sterility consists of psychotherapy. In fact, there is no form of impotency in which a psychic element that requires correction cannot be found. The principal requirement is the restoration of the patient's self-confidence. The greatest delicacy and judgment are necessary in the management of these cases. The patient should be made to feel that his physician sympathizes with him in his affliction. It will not do to laugh at his ailment, or to treat it lightly, even though assured that his impotency is a product of the mind rather than physical. An effort should be made to obtain the fullest confidence of such individuals, and they should be given instruction in the rudiments of sexual physiology. In the majority of cases they may be reasoned out of their perverted and pernicious notions regarding their physical condition. In some cases psychoanalysis has to be resorted to in order to clear the patient's mind of some unhealthy conflict that has been rooted since childhood, while with other cases objective psychotherapeutics will properly adjust the individual. At other times the physician is compelled to be somewhat disingenuous in his management of the case; for, the patient's confidence once gained, some comparatively trivial local or general measure may cure the case, providing the patient himself believes in the potency of the treatment. Above all, the patient should be assured that his sexual apparatus is in an exceptionally strong and healthy condition.

Where the person consults the physician before marriage, as should be the case with every individual, whether male or female, marriage should be recommended where practicable. However, marriage should never be advised to the man unless the occurrence of strong and vigorous erections proves copulation to be possible. Even under these circumstances, an occasional unfavorable result may ensue, because of a persistent psychic inhibition of erectile power at the time of coitus. Where the woman is prudish or of a neurasthenic nature, marriage should be deferred until she has been educated to the proper perception of the marital relations. In cases dependent upon moral or mental causes prevailing when coitus is attempted, removal of the circumstances that produce mental depression is, of course, necessary. The elements of sexual indifference due to mental worry, nervous shock, fear and excessive passion may be amenable to correction. Disgust with the partner in the sexual act causes impotency which is irremediable when the unfavorable conditions are continued. It may prevail even when intercourse with a new partner is attempted. Sooner or later, however, the case usually recovers if a satisfactory sexual "rearrangement" is consummated.

In those cases of married men or women in which lack of affinity is the principal cause of impotency, medical measures are likely to be unsuccessful, although some form of local treatment of the sexual organs possibly may be efficacious. However, in spite of what orthodox Occidental religion has decreed, the divorce court is a better and more logical remedy if the circumstances imperatively demand a cure. On the other hand, the Chinese social sys-

tem, in which divorce and polygamy is rampant, leaves the woman out of the question, without any attempt at seeking a healthy adjustment. Under such circumstances, psychogenic impotency and sterility are never rectified.

In many instances of purely nervous impotency in men, irritability of the prostatic urethra exists. This may be removed in the majority of cases by the occasional passage of a cold sound. If the case be obstinate, astringent applications may be made by means of a deep urethral syringe. The prostate or seminal vesicles sometimes are congested or chronically inflamed. Massage of these parts relieves this condition.

Where the woman is impotent because of vaginismus, the vagina should be dilated and treated locally. Directions for such procedure may be found in any text-book on gynecology. Impotency in the woman may often be overcome if the married couple are shown that mutual preparation for coition is essential if the act is to be complete. In this the husband is more largely concerned, for he has to delay his orgasm until his wife has "caught up" with him. It is difficult, if not impossible, for a person to understand a sensation she has never experienced and of which she has had no personal knowledge, so that it is reasonable to conclude that impotent women cannot conceive how there can be any pleasure in this act, which is frequently referred to as base and degrading. These women experience no more sensation or pleasure than from ordinary close contact, and submit to coitus from a sense of wifely duty, or a desire to please the husband, who is known to have animal necessities, which are often termed "beastly" tendencies. In the case of Chinese wives, they passively submit to their husbands for fear they may go elsewhere.

If the man complains of premature ejaculation, success may often be attained by a second attempt at copulation. Such a patient should be advised to avoid excitement during intercourse. Very often he may succeed in delaying orgasm by thinking of something else besides sexual intercourse at the time of its performance. Patients who are apprehensive of failure should be advised to refrain from intercourse during the night, and to attempt it only in the early hours of the morning.

It is well for newly married men affected with nervous impotency to confide in their wives and explain their temporary debility. The patient should be informed that, sooner or later, he will have a vigorous erection; as soon, at least, as the novelty of the situation has worn off and his timidity has been allayed. The wife may help in hurrying the attainment of this situation by her fortitude.

Measures of a general and hygienic character are requisite, especially in the management of cases in which actual structural disease does not exist. These general measures involve proper exercise, diet, baths, proper hours of sleep, temperance, or, better, total abstinence in the matter of alcoholics, opium, and tobacco, and freedom from care and worry as far as possible.

Cases in which impotency is due to an exhausted condition of the sexual apparatus and incidentally of the general nervous system, with a general run-down condition, primarily require complete sexual rest. Occasional or so-called moderate indulgence is not to be thought of in these cases. Perfect continence must be insisted upon for the time being; the length of time varying with the gravity of the case. It is unfortunate that the majority of patients, and particularly voluptuaries, are loath to accept such advice, believing, as they do, that by means of aphrodisiacs their virile powers should be restored without interfering with the indulgences that are responsible for their condition.

On the other hand, neuropsychopathic natures, whether Chinese or foreign, who are psychically impotent or sterile usually compensate for their inferiority complex by an asocial reaction. Any allusions to benefits derived from coition, or to others of their sex who enjoy it, meet with their emphatic contempt, and they persistently

endeavor to influence all whom they may with their unhealthy ideas. They are most severe in condemnation of erring men and women, are sometimes insanely jealous, and more or less warped in their judgment. Their solicitude for other men and women is often marked, but misplaced, for they themselves as well as their "mates" are deserving of compassion. Advice in these cases is usually thrown away and argument is useless, for unless they are personally brought to feel that which is unknown to them, they will remain serenely unconscious of the natural sexual feelings, which have such a tremendous influence upon the affairs of life.

The thinking physician, knowing the inside history of matrimonial conduct, is astonished, not at the frequency of marital-sexual disharmony, but that there is not even more of it, and that not more of the unfortunates seek surcease in neurosis or psychosis.

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The Aging Bladder

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How and when does a bladder grow old? How much discomfort should a man in the later years of life expect to suffer from his bladder? What special attention should this organ receive as its owner approaches the end of his allotted span of life? These are questions whose answers are important to our older patients and to ourselves who must care for them.

It has been said that the bladder is a remarkably well-behaved organ, and the statement is fundamentally true. Left to itself the normally formed, normally drained bladder is notable for its exemplary conduct. It does its work well and without ostentation. It becomes infected infrequently unless there is a feeding focus, and in the absence of such a focus of infection, if inoculated by a contaminated instrument or by a transient bacteriuria of renal origin, it promptly heals.

When we investigate the effect of the passage of time on the bladder we find that its action *per se* is found in the muscular coat, and that the change here runs a course approximately parallel with that in the other muscles of the body—that is, it becomes weaker and less able to withstand extra strain. Otherwise we find that the bladders of men of advanced years are essentially the same as those of members of the following generation, if—and here we come upon a very important point in our inquiry—there be no interference with the expulsion of urine. Infection of the bladder from neighboring feeding foci, prostate, seminal vesicles, and kidneys, presents essentially the same problem in old age as in youth, save that these foci are more frequently found in those of advanced years, and resistance to infection everywhere in the body is relatively lower. Unfortunately for our older patients, interference with bladder drainage is common in later life. But we frequently see old men who pass clear urine without difficulty or distress, who are all

but unconscious of the fact that they have bladders, and who find this organ an asset rather than a liability.

It would seem therefore that there is no inherent reason for a man's bladder becoming "old," and that there is no such clinical entity as an "aged bladder."

The second question propounded, "How much discomfort should a man in the later years of life expect to be caused by his bladder?" is therefore easily answered, for given healthy adnexa in the absence of a nervous lesion, *e.g.* tabes, men past middle life should be as free from vesical distress as they were before passing life's meridian. Men, either young or old, should not *expect* to have "bladder trouble," and if we tell a patient who complains of frequent urination, scalding urine or incontinence that he "must expect that sort of thing at his age," we are doing him a great injustice.

But we know that many of our older patients do have bladder distress; that some urinate with pain, scalding, and undue frequency; that urine passes from some when they do not wish it to and wets their beds and their clothes; that from others the urine will not pass though they stand long and strain till hemorrhoids are added to their troubles; and that with some the urine is no longer clear but has become turbid, bloody, and fetid. So we come to our third question, "What special attention should be given this organ as its owner approaches the end of the allotted span of life?"

A vicious habit, common to men of all ages, but especially to those past middle life, deserves special mention before passing on to a discussion of the various vesical disturbances. Pelouze has noted that it is the cause of what he has styled "habit trabeculation." It consists in trying to do by force, that of the abdominal muscles, what should be done in another manner, the opening of the sphincter by the trigonal muscles so that the detrusor muscles of the body of the bladder may cause the urine to flow freely out through the urethra. The result is trabeculation of the bladder, and at times dilatation of ureters with consequent damage to the kidneys. Our patients should therefore be warned against this practice, especially when the bladder is full, as upon rising in the morning, and told to take their time and be content if the bladder does not at first empty completely to repeat the urinary act a few minutes later, after shaving, etc., when the muscles of the bladder have had a rest. But when giving this advice one should have in mind that the cause of the habit may be true prostatic obstruction, demanding careful examination for its recognition.

It is difficult to evaluate symptoms as told us by our patients. They direct our attention to the genito-urinary organs as the seat of the patient's trouble, but they rarely if ever tell the story so clearly as to make it possible to dispense with an examination in arriving at a definite diagnosis, and never should a plan of treatment be laid out without making such a study. A detailed statement of the symptoms of all possible conditions therefore will not be given.

Frequency, present in the majority of cases, may be caused by an inflammatory condition, acute or chronic, by the existence of a urinary residual, by polyuria, by such extravesical conditions as ureteral stone, prostatitis, seminal vesiculitis and urethritis, and by habit. Nocturnal frequency is more often complained of than is the diurnal type, but careful questioning usually elicits the information that it is troublesome because of the loss of rest entailed rather than because the act is performed more often at night than during the day. The chronic nephritis of old men prevents the normal concentration of urine during the hours of sleep, and may be productive of nocturia apart from all disease of the lower urinary tract. The habit of urinating frequently may be initiated by fear of being overtaken by a full bladder in a place where evacuation would be impossible, so that the patient makes a practice of urinating whenever opportunity offers, by a transient pathological condition, etc. It is a much more prevalent condition than is generally appreciated.

Pain and burning urination are frequent

complaints of our patients with "bladder trouble." The pain of vesical disease is usually felt in the bladder itself, sometimes as a steady ache, but more often associated with distention of the badder or with urination. Not infrequently pain is felt along the urethra and at the end of the penis. Burning urination is a common complaint, the burning varying with the acuteness of the lesion and the sensibility of the patient. But it must not be forgotten that such burning may be a symptom of disease of the upper urinary tract and is extremely common in inflammation of the urethra and prostate.

Less commonly than of the symptoms just mentioned patients complain of the loss of control of their urine—sometimes of its involuntary passage, sometimes of difficulty in voiding or retention. They are most distressing symptoms about which more will be said later.

Pyuria, foul urine and bleeding are mentioned in the order of the frequency of their occurrence, the first being found in some degree in the majority of bladder disturbances.

Such is the character of the complaints detailed to us by our male patients who late in life have the misfortune to suffer from derangements of their bladders. How are we to ascertain the exact nature of the illness of each that we may intelligently prescribe the requisite treatment? Or is it necessary that a diagnosis be made in order to relieve their distress? It is certainly possible very often to relieve these men without having definite knowledge of the nature of the responsible lesions, but it is also true that probably in no class of cases may such treatment lead to such disastrous ultimate results through the neglect of lesions once curable till they reach a hopeless condition.

The following outline will serve as a guide for the examination of these patients. Description of measures which could not easily be carried out by a physician in general practice will be omitted.

Examination of the Urine.—The patient's statement as to the character of his urine must never be accepted unverified. Cloudy or turbid urine is commonly reported as clear, and that which is blood-tinged as of normal color. The patient should be asked to pass his urine in the office, that the physician may see it before it has had time to decompose, and also that he may have the opportunity to observe the character of the stream. The inspection of the urine by transmitted light gives a much better idea of the degree of pyuria than does the report of a first-class laboratory, valuable as this is in other respects. A few drops of acetic acid should be added lest an alkaline urine with phosphatic clouding lead to an erroneous conclusion. Unless meatal pus is present it is not necessary to have the patient void in two portions.

Following the examination of the urine the prostate should be palpated, its size, conformation, consistence, mobility and sensitiveness being noted. When the prostate is neither so large as to make the diagnosis of hypertrophy obvious, nor so tender as to make acute inflammation the probable diagnosis, sufficient pressure should be made, first on the lateral lobes and then in the midline in a downward and forward direction, to make its secretion appear at the meatus, where it can be collected on a slide and examined under the microscope for pus.

As the majority of bladder disturbances in old men are secondary to prostatic disease the findings of the examination just described are illuminating and important. About fifty per cent of obstructive prostatic disease can be recognized by rectal palpation unaided by other methods of examination, the other fifty per cent being made up of lateral lobe hypertrophy too slight to permit of digital recognition, median lobe hypertrophy, and median bars. Carcinoma produces the "stony hard" prostate so typical of the condition, while the firm gland, lacking the essential hardness of carcinoma, often exhibiting a nodular surface and relative fixation to the surrounding structures, is suggestive of chronic prostatitis, whether it be abnormally tender or not; the demon-

stration in its secretion of more than half a dozen leucocytes to the microscopic field, using the "high dry" objective, confirms the diagnosis.

The above examination may be sufficient to indicate the nature of the patient's trouble, in which case no more need be done at the initial visit. For instance, if the complaint be undue frequency, with pain or burning on urination, possibly pain in the perineum, rectum, penis or lumbar region as well, and the urine is found to be slightly cloudy, the prostate harder than normal, nodular and moderately tender, its secretion made up largely of pus cells, we know that we are dealing with a chronic prostatitis, and that the chronic cystitis which may be present coincidentally is secondary thereto and will clear up with treatment directed to the underlying condition, and that permanent relief is not to be expected without such treatment.

In the preceding paragraph it was stated that the diagnosis having been made the examination might be terminated. However, it is usually advisable and sometimes essential to go a step farther either then or at a subsequent time, even in the case of such a simple condition as chronic prostatitis; for should a stricture of the urethra be present the ultimate success of the prostatic treatment depends on its recognition and cure. It is therefore advisable early in the treatment of cases of prostatitis to assure oneself of the absence of urethral narrowings by the passage of a sound, 24 F. or 26 F.

The usual course of a urological examination next calls for inspection, palpation and percussion of the suprapubic region to ascertain the degree of distention of the bladder. As emphasized in a previous article in the THERAPEUTIC GAZETTE,[1] special care must be taken in the catheterization of patients suffering from chronic urinary retention, several days being required for the safe emptying of their bladders. So in the class of patients under discussion a urethral instrument should never be passed till the absence of marked distention of the bladder has been demonstrated. Such bladders will be found in many patients complaining of difficulty of urination, and in those with marked nocturia, and especially in those with incontinence, most incontinence in old men being "incontinence of retention," as the overflow of a distended bladder is aptly termed. But when the bladder is not recognizable above the symphysis we proceed to gently pass a catheter for the triple purpose of determining whether the urethra will transmit such an instrument, the presence or absence of residual urine, and the length of the urethra. The mere fact that a catheter, 16 F. or 18 F., will pass establishes the fact that no grave degree of stricture exists. The flow of urine from the catheter, the patient having attempted to empty his bladder at the beginning of the examination, demonstrates the presence of residual urine, and its measurement indicates the degree of the patient's disability in this regard. His urethral length is determined by marking with thumb-nail or pencil the location of the meatus on the catheter when it is withdrawn to the point at which urine ceases to flow; measurement from this point to the extreme end of the eye of the catheter gives the urethral length.

This completes the examination, save for that simple but all-too-often-forgotten test of the pupils and tendon reflexes, and we are ready to attempt to correlate symptoms and physical signs, make a tentative diagnosis, and plan the treatment necessary to restore our patient to health.

The clouding of the urine is usually due to pus. As noted above, the urine should be acidified to differentiate from phosphates; heating a cold urine causes urates to go into solution. The presence of pus spells irritation, usually that of infection, though occasionally of stone. Prostatitis and prostatic obstruction are the commonest causes of pyuria in old men; their recognition by means of rectal palpation, the microscope, suprapubic examination and the passage of a catheter have been described. The finding of a urethral length in excess of 8 inches is highly suggestive of prostatic

[1]Urethral Catheterization: Its Pitfalls and Their Avoidance, January, 1926.

hypertrophy; in connection with recognition of enlargement by rectal examination and with residual urine it clinches the diagnosis, ruling out "bar" as the cause of prostatism.

The treatment of prostatic obstruction is a matter for serious thought. The exigencies of each case require attention, for while modern methods of examination enable us to know much more exactly than formerly the probable outcome of operative treatment, thereby increasing the number of operable cases over the time when our prognosis was largely a matter of intuition, yet the social conditions of an individual case may make operative treatment undesirable. Furthermore, three distinct operative procedures are now in vogue: removal of the prostatic enlargement by suprapubic, perineal and urethral approach, so that the manner of operation also should be given attention. This of course is the duty of the specialist who is called in to give his advice and services in the treatment of the condition after the practitioner originally consulted has rendered the inestimable service of making a diagnosis by the means indicated above before the obstruction has existed so long that great damage has been done to the kidneys and cardiovascular system. For all too often patients are not referred for operation till after nocturia has existed for years, till after complete retention has occurred several times, or till there have been repeated periods of incontinence. These patients not only lose years of comfort to which they are entitled, but as a result of the delay also suffer the annoyance and economic loss of prolonged preparatory treatment before they can safely be subjected to operation.

The less frequent causes of pyuria are stone, tuberculosis, tumor and diverticulum of the bladder, and disease of the upper urinary tract, as pyelonephritis, pyonephrosis, stone, etc. The differential diagnosis does not come within the scope of this paper.

Hematuria must always be regarded as a danger-signal. Its source should therefore be determined in every case, even though this necessitates an extensive examination. Free hemorrhage is usually, not always, of vesical origin, more often from a tumor, benign or malignant, than from any other lesion, but it may come from a ruptured vessel in the mucosa covering a hypertrophied prostate, or less often from a vessel in the bladder wall. Stone and infection, especially tuberculosis, are often responsible for vesical hemorrhage. Dysuria is usually present, but at times no symptoms save the bleeding are noted. Renal hematuria, sometimes copious, is usually devoid of bladder symptoms.

Treatment.—Our object in treating these patients may be prophylactic, palliative, or curative, according to circumstances.

The prophylactic treatment includes the usual advice to patients as to care of the general health, particularly as to care of the bowels and the avoidance of constipation. Avoidance of surface chilling should be emphasized. Specific warning should be given as to allowing the bladder to become over-full, and, as mentioned above, against straining to empty the bladder. It may be helpful to explain to the patient how the urinary act is performed, and that inability to urinate in this manner is evidence of obstructive disease, requiring an examination to determine its nature and the best method of removal. They should also be advised that any vesical distress is abnormal, and that it should be reported. Nocturia should be specifically mentioned; having been reported an examination is in order to determine whether it is due to polyuria, to habit, to obstruction, or to inflammation.

When symptoms have developed at the time of consultation the treatment applicable depends on the nature of the causative lesion and the physical condition of the patient. Naturally we prefer if possible to administer treatment which will be curative rather than merely palliative, but occasionally palliative treatment is all that the general condition of the patient will permit being done for the time being; and at times one is so fortunate as to entirely relieve the symptoms complained of by what were thought to be "palliative" measures.

For the relief of the pain and tenesmus

of acute inflammation the hot general bath or sitz bath is one of our most potent remedies. Regardless of the cause of the disturbance, heat applied through the medium of the bath gives relief, the degree and duration varying with the condition for which the treatment is applied and with the individual patient.

Other methods of treatment are the administration of various drugs by mouth, rectum, and hypodermic injection, and various local applications and manipulations, the latter group being the more important.

Of the host of drugs which have been used for their influence on the bladder, the following may be mentioned as of proven value:

For their antiseptic action, hexamethylenamine (acid urine only) and hexylresorcinol (acid or alkaline urine).

To acidify the urine, ammonium chloride in 5- to 15-grain doses two or three times a day.

To alkalinize the urine, sodium bicarbonate in 30-grain doses three times a day.

As sedatives, the bromides, hyoscine, opium, and belladonna; the combination of the last two named in rectal suppositories is specially efficient. For some unexplained reason the combination of calcium and creosote as found in calcreose, in 8-grain doses four times a day, has a marked local sedative action.

In the great majority of cases some form of local treatment is necessary to give a maximum of relief. For the purposes of this article "local treatment" means those therapeutic measures which can be carried out in the office or patient's home without unusual or elaborate equipment and without special urological skill. These procedures are prostatic massage, catheterization, urethrovesical irrigation and injection, and urethral dilatation. But before taking up the use of these forms of treatment I would utter these words of caution: Beware of the chronically distended bladder and of the patient with clear urine! Reference to the first condition, the distended bladder, has already been made in this article. The patient who comes to us with an over-full bladder due to prostatic obstruction, telling us that he has voided as usual till a few hours or a few days before he applied for treatment, has in reality been carrying a residual urine of several ounces for a period of years. During that time his kidneys and his cardiovascular system had accustomed themselves to the back pressure to such an extent that the sudden removal of the urine from his bladder is likely to cause a disturbance of the fine adjustment now existing, with resultant fall in blood-pressure and decrease in kidney function. Occasionally anuria, renal hemorrhage and death result from such sudden removal. It is essential that these cases have their bladders emptied, but it must be done gradually, over a period of days, by leading the urine to a receptacle so far above the level of the bladder that the urine flows into it a few drops at a time when the apparatus is first installed. After remaining at this level for twenty-four hours the receptacle is gradually lowered, provided there has not been an alarming drop in blood-pressure, till it is below the bladder's level.

Patients with clear urine must be handled with strictest asepsis, for they are easy to infect, and when infected are likely to have severe reactions. It is well after any instrumentation of such patients to inject half an ounce of one per cent mercurochrome into the bladder, leaving it to be voided by the patient.

Prostatic massage is indicated in cases of chronic prostatitis; occasionally functional improvement is noted after its use in cases of prostatic hypertrophy. It is performed by making firm pressure with the gloved index finger from above downward and inward on the lateral lobes, then from above downward in the midline. Thorough anointing of the finger before insertion into the rectum minimizes the patient's discomfort. The treatment should usually be given at intervals of three to four days, and should be followed by an urethrovesical irrigation.

Catheterization was dealt with at length in my article referred to above. It should be performed with the greatest possible gen-

tleness with that form of catheter which most easily slips through the urethra into the bladder. The catheter must be sterilized before use, preferably by boiling, must be well lubricated, and handled in such a manner that it is not contaminated before its introduction. The meatus should be wiped off with an antiseptic solution before the introduction of the catheter; when the patient is unable to void the anterior urethra should be flushed out with a sterile, non-irritating solution.

Irrigation of the bladder may be performed in two ways: by means of a meatal nozzle and hydrostatic pressure, or through a catheter. The former method is preferable when there is no residual urine, the latter when a residual of more than a few drachms is a feature of the case. When the meatal nozzle is used the irrigating solution is placed in a reservoir from two to three and a half feet above the level of the bladder. The nozzle used is of the acorn type, designed to enter the meatus but a quarter of an inch. Reservoir and nozzle are connected by rubber tubing; a pinch-cock of some sort is a convenient addition. In use the nozzle is pressed against the patient's meatus as he stands, sits, or lies on his back. When he relaxes his muscles as though to urinate the fluid flows through the urethra into the bladder, giving a thorough lavage without possibility of instrumental trauma. When a catheter is used the procedure is the same except that the nozzle is placed against the end of the catheter.

A great number of solutions are used for bladder irrigations. The most useful are the following:

Potassium permanganate, 1:12,000 to 1:4000.
Boric acid, 2 per cent.
Normal saline solution.
Silver nitrate, 1:20,000 to 1:1000.
Mercurophen, 1:12,000 to 1:4000.
Acriflavine, 1:8000 to 1:4000.
Ichthyol, 1:1000 to 1:500 in normal saline solution. This is an especially efficient lotion in acute inflammatory conditions.

Injections of comparatively small quantities of solution may be used in connection with treatment with irrigations or alone. The injections may be made through a catheter, with an instillator of the Keyes-Ultzmann type, or through the urethra by means of a blunt urethral syringe, exerting force so gently and gradually that the sphincters are passed without causing discomfort. Once more the number of solutions that can be used is very large, some of the more important ones being neosilvol and silver nucleinate, 1 to 10 per cent, and mercurochrome, 1 per cent.

Dilatation of the smaller strictures, up to 16 F. or 18 F., is best done with flexible olivary tipped bougies, which can be passed more safely and comfortably than steel sounds. The latter are the instruments of choice in the treatment of strictures of larger caliber. Dilatations are usually performed twice a week. They should be followed by urethrovesical irrigations.

It is not possible here to do more than give general rules for the application of the procedures just described. It must be remembered that cases of chronic distention of the bladder are in a class by themselves, in that nothing can be done for them save gradual decompression till they have been emptied in this manner. Thereafter irrigation through a catheter and at times an injection of silver or mercurochrome are highly useful.

For the most part, patients with pyuria are benefited by irrigation of their bladders, the catheter or per urethral method being selected according to the presence or absence of residual urine. I have seen the capacity of a bladder increased from half an ounce to eighteen ounces by the use of this treatment alone. Failure to respond favorably suggests the presence of tuberculosis, tumor, stone, or some feeding focus of infection.

The simple treatments described above have a very wide field of usefulness. In many cases they are curative. In others their use is warranted over long periods of time because of the benefit derived from them, even though it is vain to hope for cure from such means. Unfortunately, there is another group wherein their use

is to be deprecated because of the loss of time engendered, the application of curative measures being thus postponed till the time when such measures might be useful is past. This word of warning is spoken lest such conditions as malignant disease of the bladder or renal infection be allowed to become inoperable.

1523 PINE STREET, PHILADELPHIA.

Blood Transfusion in the Treatment of Disease.

In the *British Medical Journal* of November 27, 1926, GULLAND says that transfusion, in his experience, is most useful in uncomplicated cases of pernicious anemia which are lagging and failing to raise their blood count by their own and our efforts. If an unlimited supply of donors existed it might be worth while to transfuse every case when it first comes under observation, but he doubts very much whether results would be any better than at present. If a patient does not respond to one transfusion, a second will rarely help him. He recalls one case in which the patient turned the corner with a transfusion, and went away, comparatively well, to another city. He and his friends were so much impressed by the result that they insisted on repeated transfusions at short intervals, until the blood was pushed up to normal, with the unfortunate result that his heart apparently could not stand the strain of repeated transfusion, and he died of cardiac failure.

The value of transfusion in acute hemorrhage and before and during operation is so well established that it needs no emphasis. In leukemia it is necessary to distinguish sharply between the acute and chronic forms. At one time he treated several acute leukemias in succession by transfusion. In no case was there any improvement, either clinically or in the blood picture, though there were no severe reactions; the course of the disease did not seem to him to be altered in any way, and he has not used the method recently in these cases. In the chronic leukemias, granular and non-granular, the only indication he has adopted for transfusion has been intractable hemorrhage which would not respond to other treatment, and he has twice had good results. He is doubtful whether transfusion in the ordinary course is likely to give such good results as radiation.

In aplastic anemia, owing to the hopelessness and inefficacy of every other form of treatment, we are sometimes driven to a transfusion. But it is never of any service in the acute forms, and sometimes causes sharp reactions; in the more chronic forms, in which he has sometimes transfused repeatedly, there was no effect beyond the short and temporary relief from the increased number of corpuscles.

During the past year his attention has been specially drawn to hemophilia. The starting-point was the admission to the ward of a hemophilic in whom the removal of several teeth had become urgent. This led to the study of the effect on his coagulation curve of all the substances reputed to be useful, and ultimately to the bringing into the ward of all the hemophilics and suspected hemophilics that could be found. He does not report the results of this study at present. It suffices to state that transfusion was found to bring the coagulation curve nearer to the normal, and to do so more rapidly than any other method, while repeated transfusion seemed to start the patients off on a higher plane of health and resistance.

He has not yet made up his mind about the value of transfusion in purpura hemorrhagica. Some cases have done well with it, and have had no recurrence for long periods, but he has a patient at the moment who was transfused in the beginning of May. The hemorrhages ceased and there was a definite improvement in the blood, but during this month the bleeding started again, and he proposes now to give him a preliminary transfusion and then to give a large quantity during the course of a splenectomy. He has seen no bad results from transfusion in this condition.

Transfusion, if it is used discreetly, is certainly one of the most valuable remedies in a number of diseases, and is sometimes the only one which will save our patients.

Editorial

THE ACTION OF THE GALL-BLADDER.

Our readers are well aware of the fact that there has been in the recent past, if not at present, much difference of opinion among physicians and surgeons as to whether cholecystectomy or drainage of the gall-bladder is the better procedure. We believe that, like most differences of opinion, the real conclusion which has been arrived at is that each case is a rule unto itself, and that it is the duty of the surgeon to decide when he comes upon the gall-bladder which of the two operative procedures is the wiser one.

So, too, our readers will also recall that many months ago in an editorial note we called attention to the function of the sphincter of Oddi, and pointed out that one of the reasons why certain cases which have been subjected to cholecystectomy do well while others do badly lies in the fact that the gall-bladder having been removed the ability of the liver to store bile in that viscus is ablated, and the bile passes directly through the hepatic and common duct to the ampulla of Vater. If the sphincter of Oddi is competent to control the flow of bile and the common duct gradually becomes dilated so that it acts as a reservoir, or fictitious gall-bladder, the patient has little intestinal disturbance, but if, on the other hand, this action of the sphincter does not take place there seems to be a continual seepage of bile into the small intestine, a condition which is quite contrary to that which exists when the gall-bladder is intact as to function. This difference in the action of the sphincter of Oddi and the common duct probably explains why certain cases of shrunken gall-bladder which has become incompetent through the presence of inflammation, or stone, have little inconvenience, while others suffer a good deal. We still are far too ignorant of the function of this portion of the biliary apparatus, and any research of importance designed to throw more light upon this important factor in the digestive system should be noted.

McMaster and Elman have recently contributed to the *Journal of Experimental Medicine* a very important paper upon the expulsion of bile by the gall-bladder and upon the physiological variations in the resistance of bile flow to the intestine. It is true that their observations were made upon the dog rather than upon man, but at least they throw light upon an interesting problem.

Space does not suffice to give in detail the various excellent experiments which they made and which reveal certain curious variations in biliary pressure which possibly would not have been guessed at.

They found that during fasting periods the bile is prevented from entering the intestine by the high resistance of the muscles about the lower common duct, and the bile being, therefore, dammed back, fills the gall-bladder, which viscus by its ability to concentrate the bile is able to store large amounts of this secretion. Furthermore, it is evident that if this takes place, no bile may appear as issuing from the ampulla of Vater. Nevertheless the bile may be constantly secreted, and there is evidence that an excessive pressure in the duct takes place though the gall-bladder is filled, this viscus acting as it were as a safety valve. As soon as food enters the stomach bile enters the intestine, then stops its flow, and then continues its escape at intervals during the progress of gastric digestion. They are uncertain whether its escape is synchronous with and dependent upon the gushes of acid chyme through the pylorus, but think there is some relationship to this flow, and do not believe that the action of the diaphragm is a material factor in causing the gall-bladder to empty itself.

The pressure which they found in the biliary tract, including the gall-bladder, varied over a considerable range, and it is interesting to note that it was often far in excess of blood-pressure.

Many years ago the great physiologist, Karl Ludwig, showed that the pressure in the parotid duct was far higher than the pressure in the arteries supplying that gland; in other words, that secretion took place side by side with the expenditure of energy arising in the gland itself; and McMaster and Elman now show that the liver also disengages energy as well as carries on bile secretion. Thus they found that what they call normal resistance, or the pressure in the common duct, four to twelve hours after a feeding is about 100 to 120 mm., but that during actual fasting the pressure of the bile may amount to 200 or 250 mm., whereas as soon as biliary flow takes place, on the entrance of food into the stomach, this pressure is greatly diminished, falling as low as 50 mm. or even less. However, very shortly after this fall the pressure again becomes high, as much as 250 mm., as if in recognition of the fact that bile must be spurted freely into the intestine.

Our readers will, of course, recognize the interesting points which this research develops. The cholecystectomy, as these investigators state, displaces the mechanism whereby the normal intermittent expulsion of bile takes place. Again, the stimulus of food brings about a physiological bile drainage which would seem to indicate that the frequent administration of food to patients, when it is desired to promote such drainage, may be advantageous, and, furthermore, that in cases where there is deficient secretion of HCl, the administration of this acid by increasing the acidity of the gastric juice, will aid not only in the prompt expulsion of food from the stomach, but by virtue of its acidity bring about relaxation of the muscular fibers of the common duct and the sphincter of Oddi so that a free escape of bile will occur.

Two other interesting points may be considered. It is universally thought that the administration of calomel or blue mass tends to increase the secretion of bile; although experiments upon animals, and upon man, when external biliary drainage has been produced, have failed to show that any substance except ox-gall actually increases the flow of bile into the drainage bottle.

These experiments suggest the thought that the administration of calomel does not increase the secretion of bile, but in some way not understood, either by relaxation of the sphincter of Oddi or by the production of some hormone which causes contraction of the gall-bladder, causes a free flow from this reservoir to take place into the duodenum.

IS ICHTHYOL USELESS?

Under this concise heading there recently appeared in the *Boston Medical and Surgical Journal* a paper by Blaisdell. His contribution was the result of a questionnaire addressed to 300 dermatologists. He states that ichthyol is now omitted from "New and Non-official Remedies," by a comparatively recent ruling, by the Council on Pharmacy and Chemistry of the American Medical Association. Because of this ruling, Blaisdell, having in his own practice found ichthyol most valuable, undertook the active investigation to which we refer.

Some of the reasons for dropping ichthyol from "Non-official Remedies" were that it has no reducing power, that it does not precipitate the protein of the body cells, and that it is at best of feeble antiseptic action. Blaisdell tells us on the other hand that he has used ichthyol effectively in a large number of skin conditions for a number of years, that it has maintained its place in the formulary of the Skin Department of the Massachusetts General Hospital for over a generation, and is prescribed with daily satisfaction and success by a majority of the members of the staff.

Perhaps it is not improper for the writer of this editorial to add that he too has used it for many years and considers it the best application in 25- to 50-per-cent ointment in rheumatism and erysipelas.

Blaisdell found that opinions amongst dermatologists varied very greatly as to its efficiency. Incidentally, he thinks it necessary in his report to state that he is not biased in his conclusions by reason of connection with any pharmaceutical house manufacturing ichthyol.

Blaisdell received 169 answers to 300

questionnaires, which were sent out in such a way as to cover practically all portions of the United States. The result was that he found 80 per cent of the men who replied are using ichthyol in varying degree in their dermatological practice.

It is interesting to note the character of some of the questions that he asked; for instance: Do you use ichthyol now? One hundred and thirty-four answered yes and 35 answered no. Has the banning of ichthyol by the Council on Pharmacy influenced you to stop it? Answer: Yes, 1; No, 166; not voting, 2.

Concerning its application in erysipelas, the replies show that 60 per cent had an excellent success, 27 per cent thought no benefit had ensued, and 12 per cent had no experience.

In lymphangitis, 45 per cent had a favorable experience; 20 per cent thought it of no use; and 35 per cent had had no experience.

In cellulitis, 52 per cent were favorably impressed; 22 per cent were opposed to its use.

In the treatment of boils, 54 per cent found it useful; 22 per cent believe it to be of no use; and 40 per cent had never tried it.

It is not possible in this editorial to continue giving the percentage of returns in regard to other conditions which are more rarely met with. Those who are particularly interested should refer to Blaisdell's original paper, but it is interesting to note that 22 physicians who made a reply found it useful in eczema and 21 in acute dermatitis.

In the paper to which we have referred Blaisdell quotes a large number of communications in which the writers illustrated their method of employing this substance. He also quotes the words of those who have not employed it or have little faith in it, but as a result of his own experience, and in this we agree with him, he reaches the following conclusions, to wit: That it would appear that a large majority of the dermatologists in the country are using ichthyol, including the various synthetic substitutes, and are finding it useful and effective in a large number of skin diseases. Again, he says, "practically without exception the dermatologists prefer to judge a drug in the light of their own clinical experience."

Blaisdell believes that these views are supported by the replies made to his question as to whether ichthyol should be reinstated in "New and Non-official Remedies." The vote stood: 108 voting yes and 27 voting no. The rest failed to vote as to this point.

THE EFFECT OF DRUG ADDICTION UPON THE DURATION OF LIFE.

One of the factors in connection with the abuse of drugs, which are more or less narcotic in their effects, which has received relatively little sutdy is the difference in their action when taken over a long period of time. It is pretty generally recognized that cocaine produces in a few weeks or months very marked evidences of deterioration and degeneration, that chloral is often taken for much longer periods before objective symptoms of its influence are manifest, and some of the newer sleep-producing drugs, if taken in moderation, are used over long periods of time without apparently any deleterious effects except that the patient becomes more and more unable to sleep without assistance. Every physician of large experience has met with many cases which confirms him in the opinion that opium or morphine may be taken for many years apparently without producing changes in the sense of morbid anatomy and even without materially influencing mentality.

Recently there has appeared in the *Lancet* a report by Park, who is the medical superintendent of a Home for Alcoholism, Drug Habits and Neurasthenia in England. He reports the case of a patient of seventy-one years who had taken 30 grains of morphine daily for forty years, during which time he had apparently been able to carry on his life's work and to hide his failing from his

nearest relatives and friends; indeed, in this case, even his wife did not know of his addiction.

In still another case a professional man of sixty-five years of age, who in his early life had been a keen sportsman, had during thirty-five years, for the relief of the pain arising from a hunting injury, taken from 5 to 20 grains daily, and on admission was taking from 8 to 10 grains daily, and he had also taken alcohol to excess.

In still another case a clergyman of seventy-four years was found to have taken morphine continuously for over forty years. During all this time he carried on his work as a clergyman, and neither his wife nor any one else had the slightest suspicion of his habits. His average daily dose was about 7 grains. He never used alcohol.

In still another instance a professional man of seventy-one years, still carrying on his profession, reported that he had taken the drug for forty years without any break. His average daily dose was 30 grains, taken in two doses of 15 grains morning and night, and in addition to this for some years he had taken a bottle of whisky daily. Here again no one suspected him of drug use, and on admission he was in fairly good health except for a large umbilical hernia.

It is interesting to note that in all of these patients methods undertaken for the withdrawal of the drug did not produce exceptionally severe symptoms, although their mentality had changed sufficiently to make it necessary that something should be done even in their time of life to break the habit.

That the use of opium or morphine in middle life is, of course, to be greatly deplored, nevertheless in far-advanced old age its administration may be distinctly advantageous because a sufficient number of years does not remain in which deleterious effects can be produced to a great extent.

It is probable that no other drug, which is classed as a narcotic, can be taken for more than a year or two at the most without such manifest deterioration that attention is called to the individual.

ROUTINE USE OF THE STOMACH TUBE IN SURGERY.

We believe that it is a very common custom to direct, before an abdominal operation is performed, that gastric lavage shall be practiced, the object, of course, being to prevent vomiting during and after the operation and in order that the surgeon may be reasonably sure that postoperative complications due to the presence of undigested food will not occur; and it goes without saying that if the operation is to be upon the stomach itself it is difficult to see how lavage can be avoided.

A few years ago every abdominal patient was purged before operation. Now the practice is to avoid purging. The object of this editorial is to raise the question as to whether, except in selected instances, lavage should be ordered. As an illustration: During an automobile ride a man is seized with sudden severe abdominal pain due to perforation of an appendix; when seen by a medical man he has evidences of early wide-spread peritonitis. It is decided by the surgical consultant that immediate section is demanded. It is also decided that gastric lavage should be practiced. The patient, who already has a tendency to pernicious vomiting and who has never had a stomach tube passed, is made to retch violently when its passage is attempted, and the irritability of his vomiting center is so increased in consequence that abdominal quiet is impossible of achievement, with the further disadvantage that the violent contractions of the muscles of the chest and abdomen, associated with the retching, serve to drive out an ever-increasing quantity of material through the appendicular opening into the abdomen, which, when opened, is found to be flooded wtih material which indicates an early demise of the patient.

In other instances where no perforation is present, the writer of this editorial has seen a patient, who has had no gastric irritability, develop such a condition as a result of the attempt to pass the stomach tube so that his condition when placed upon the operating table was distinctly bad.

The object of this editorial note is not to advocate the throwing to one side of gastric lavage in all cases, but rather to advocate that it be used only in carefully selected cases. There is always danger of following measures by routine and subjecting all patients to the same kind of preparation. Preoperative preparation is coming to be more and more recognized as important, and when as much skill and judgment is exercised as to preoperative treatment and postoperative treatment as is now exercised in operative treatment, results will be obtained which are even better than they are at present.

DIPHTHERIA AND THE HEART.

Mixsell has recently reported upon 400 cases of diphtheria at the Willard Parker Hospital in New York. Of these cases 40 died, giving a mortality of 10 per cent, a rate which would be excessive were it not that diphtheria antitoxin was not given early enough to adequately combat the infection in a certain proportion of patients. Fifty per cent of those that died are recorded as having been killed by toxemia, but the average date of administration of antitoxin was five and a half days after the onset of the disease, and, as we all know, by that time so much damage has been done that no method of treatment can fully succeed. So, too, of the 40 that died, only 10 had been given antitoxin before admission, and the doses administered were too small and given too late. Thus in one instance only 1000 units were given on the eighth day; in another instance 5000 units were given on the eighth day, and in still another instance 9000 on the seventh day. Of the 360 cases that recovered, the average days on which antitoxin was administered was on or before the third day of the disease.

The deaths from myocarditis made up 37.5 per cent of the total, and those from heart block represented 12.5 per cent. Of the cases that survived there were 43 cases of arrhythmia and one case of partial heart block. In the latter the pulse dropped from 80 to 46 for three hours, then returned to 76, with ultimate recovery.

At this late date it seems to be hardly necessary to emphasize the importance of giving antitoxin at the earliest possible moment, which, of course, is to some extent equivalent to advising that the possibility of diphtheria being present should always be borne in mind. If it were constantly borne in mind and the patient seen frequently enough in the early stages, with the free administration of antitoxin, it may be fairly stated that the mortality would be nothing.

It is further manifest that if death does not occur during the acute attack it may nevertheless take place days or weeks afterwards, and this emphasizes the necessity of keeping these patients in bed for three to four weeks. Mixsell states that at the end of the third week, if they are doing well, his cases are allowed to sit up in a chair, the pulse being taken before getting up and ten minutes later, and if there is much speeding up or irregularity the child is put back to bed. It is interesting in this connection to note in these convalescent cases that when the rate is below 120 the mortality is under 5 per cent; when 130, the mortality is 15 to 20 per cent; when 150 or over, there is a mortality of 40 to 80 per cent. In other words, the speed of the pulse is to a large extent a gauge as to how soon the child should be allowed to sit up or get up.

Where the myocardial involvement is notable the first symptom that Mixsell recognized was an irregular or intermittent pulse, feeble, compressible and rapid on the least exertion, with reduplication of the first sound of the heart. If these symptoms persist, there is restlessness, pallor, precordial distress, vomiting, dyspnea, liver enlargement, and great mental anxiety, and death may follow without warning in a few hours. Such cases he believes should, in this post-diphtheritic state, be treated by absolute rest, aided by full doses of morphine. He believes that digitalis in this stage of affairs is more likely to do harm than good.

He fails, in his article in the *Archives of Pediatrics,* to express an opinion as to the value of strychnine, but we believe that the profession generally thinks that strychnine is far better than digitalis under the conditions enumerated.

A WORD AS TO NOVASUROL.

Originally introduced into medicine as a remedy for syphilis, this line of its employment has largely gone out of use and the drug stands before the profession to-day as an active diuretic, which is useful under certain circumstances and has very definite contraindications except in certain carefully studied individuals. The condition in which it undoubtedly gives the best results is cardiac dropsy resulting from ruptured compensation, and under these circumstances when administered intramuscularly (the contents of one ampoule being administered not more frequently than every fourth or sixth day) it may cause a polyuria, rising from an oliguria of 500 cc. to even 3500 or 4000 cc. If, however, the ruptured compensation is associated with renal changes, it is becoming more and more evident that the employment of this drug is absolutely contraindicated.

It is well known that mercury has a special affinity for the secreting tissues of the kidneys, which affinity is greatly increased by disease, and those who use novasurol soon learn that if it is given freely in the presence of acute or subacute nephritis, or in one of the chronic forms of nephrosis, it is capable of producing not only oliguria but actual anuria, with definite toxic changes in the kidney.

It has also been found, in those cases in which novasurol fails to induce a free flow of urine, that the administration of full doses of ammonium chloride act as a most efficient adjuvant and sometimes helps the novasurol to produce the polyuria desired.

To those who are especially interested in this subject, we can refer them to a paper by Serby of Chicago, which appeared recently in the *Archives of Internal Medicine.* While the number of cases which he studied was not very great, nevertheless the conclusions at which he has arrived are worthy of consideration, first, because his investigation was carefully carried out from several points of view, and, secondly, because his conclusions are so wise. Thus his first statement as the result of his study is that if this compound is added to one's armamentarium, it is to be used with great caution. He thinks it can be given intravenously or intramuscularly in the dose of 1 cc. twice weekly, and believes that the intervals between the doses are advantageous in that they permit the kidneys to recuperate from the active stimulation which the new drug induces. Again, he believes that it is the most powerful diuretic in cardiac decompensation that we have, but contrariwise, asserts that it should not be used until the usual measures, as, for example, rest in bed, digitalis, and restricted liquids, have been tried. He thinks it is not only harmful to diseased kidneys but also to the liver. It must be always remembered that in cardiac decompensation cases with dropsy, considerable albuminuria may be present, because of renal congestion, and it is up to the physician to determine how much the abnormalities of the urine represent circulatory failure and how much they represent renal change.

Finally, it is interesting to note that Serby found that the diuresis appears usually about three hours after the drug is given, lasts but twelve hours in young persons, and from twenty-four to forty-eight hours in the aged and feeble.

Perhaps his two concluding statements should also be borne in mind, namely, that novasurol at the same time that it causes decrease in anasarca may cause an increase in uremia, which, of course, is another way of saying it is contraindicated if the kidneys are diseased.

Lastly, he has found that in some instances the drug fails to cause diuresis,

although this failure is not due to its having injured the kidneys.

The writer has found the intramuscular injections are rather painful, and sufficiently so in some patients to make them refuse further treatment.

ON THE VALUE OF MALARIA INOCULATION IN THE TREATMENT OF NERVOUS SYPHILIS.

Most of our readers are probably familiar with the fact that this method of treating the late stages of syphilis involving the nervous system may be now said to rest upon definite and reliable results and to produce remissions or apparent cures in patients who otherwise seem doomed to the slowly progressive manifestations of paresis.

It will also be recalled that benign tertian malaria is the parasite most commonly employed as a therapeutic agent. Malignant tertian and the other forms of the parasite possess certain dangers which even the free use of quinine may not be able to put aside.

An interesting and valuable paper has recently been contributed by Rudolf from the Claybury Mental Hospital, England, upon this important subject. He quotes largely from the accumulated literature and reports upon his own experience in the institution to which we have just referred. Not only did he study the effects of malaria inoculation upon paresis, but he carried out experiments to determine whether immunity to an artificially inoculated malaria can be established. For this purpose inoculations extending over two years were carried out, with the result that it was shown that when one strain of plasmodium vivax was utilized immunity developed, and that the immunity became more and more marked as the number of inoculations in each patient increased. In some instances the parasites were found in the peripheral blood for a few days after inoculation even if afterwards malarial infection from the clinical standpoint did not appear. It would seem, however, that in order to get results it is necessary that the patient should have a definite malarial outbreak, and the facts we have just quoted prove that where immunity, natural or acquired, exists, another strain of the plasmodium vivax must be employed.

It is interesting to note, too, that Rudolf describes a method by which he preserves the parasites for as long a period as four or five days, and states that he has sent frozen defibrinated blood 170 miles by post with a resulting successful inoculation.

Other points of interest in his communication deal with the incubation period of artificially inoculated malaria. Taking cases from the literature he found that the first rise of temperature occurred from seven to twenty-five days after inoculation; subcutaneous blood inoculation gave an incubation period of from one to thirty-six days, and an intradermal inoculation is followed by a longer period; intramuscular injections have about the same period as that which follows the subcutaneous method. When infected blood was given intravenously the duration of incubation varied from one to nineteen days, but was usually from three to eight days. Naturally there is some difference in the duration of this period according to the number of parasites injected. The greater the number the shorter the period. An interesting table is given to illustrate these facts, and it is to be noted that doubling the dose does not cut in half the incubation period.

Following the inoculation he reports a remarkable increase in the red cells, as much as 1,700,000 to 2,000,000 per cc. This is followed by the characteristic anemia, which, however, does not always occur during the incubation period. With this change in the red cells a leucopenia develops.

Bringing his statements down to the direct treatment of paresis, we find that such patients vary greatly in their reaction to inoculation. Some do not feel at all unwell, as in the case of one man who read his newspaper when his temperature was 105°. In an analysis of 100 rigors occurring in 24 patients, it was found that the duration

of the shivering was less than eight minutes in 85 per cent of rigors, and that occasionally the sweating stage occurred many hours after the temperature dropped to normal. The pulse may be greatly quickened, rising as high as 180 beats per minute without apparently any damage to the heart. It was found that in patients who died as a result of their disease, after a course of malaria inoculations, the size of the spleen at autopsy was within normal bounds.

Another very interesting point in his experience is that blood-inoculated benign tertian malaria reacts very rapidly to quinine; thus 3 or 4 grains twice a day for three days, followed by the same quantity once a day for four days, is usually sufficient to prevent the occurrence of relapses. Occasionally, however, very large doses of quinine, as, for example, as much as 12 grams of quinine bisulphate administered over a period of seventeen days, were essential.

Another interesting point is that malarial relapses may occur from seven to thirteen months after the primary malaria. At Claybury some relapses occurred from six to seven months after.

Rudolf then turns his attention to what has been accomplished by this method in general paresis, his observations in each case being made at least two years after treatment had been given. He quotes Gertsmann as reporting on 400 cases, of which 33 per cent were undergoing good remissions, 14.25 per cent seemed arrested, and the balance apparently not improved. If, however, patients are analyzed who have been treated in the early stages of their malady, the results are very much more encouraging than those just mentioned. In other words the more chronic the condition the less good the results.

Rudolf concludes from his study of the literature and his own experience that taking it all in all it may be said that remissions occur from four to seven times more frequently in the inoculated cases than in the untreated cases.

THE SLOW INTRAVENOUS INJECTION.

Intravenous injections as commonly made in the past we believe have been given too rapidly. Fluids do not normally enter the blood-vessels from the digestive tract except by gradual process, and the injection of half a pint to a pint of fluid into the vein within a few minutes, except under certain peculiar circumstances, would appear not to be wise.

For the purpose of combating certain surgical emergencies relatively rapid injections may be essential. They never do good by their bulk but by their heat or chemical constitution. When intravenous injections are used to supply the body with fluid in cases in which dehydration has taken place, undoubtedly gradual injection is essential, and furthermore, if done properly, it is much less painful and troublesome than is hypodermoclysis, in which, of course, fluid is absorbed gradually although injected, relatively speaking, rapidly. A trocar and cannula are used to enter the vein; the trocar is removed and the rubber tubing of the infusion apparatus is attached to the cannula, which is held in place by an adhesive strip, and the fluid, with or without some medicinal agent, can be made to enter the circulation gradually over a period of many hours, being kept warm by a proper application of heat.

The almost universal use of the so-called Murphy drip depends upon the fact that Murphy recognized that the bowel would not tolerate the rapid injection of a large amount of fluid and, therefore, would not retain it. We fail to see why intravenous injection should not be given with the same caution, from a physiological standpoint, as the rectal injection. When adrenalin is used with the hope that it will raise blood-pressure, this slow method is manifestly more closely allied to Nature's processes than is the ordinary injection. Almost infinitesimal amounts of adrenalin escape into the circulation from the suprarenal bodies hour by hour, and the doses of

adrenalin which are often given intravenously introduce a quantity of this active substance in a few minutes in excess of what may enter under normal conditions in twenty-four hours.

It is well recognized by those who are thoroughly familiar with the physiological action of this substance that its effects differ widely, according to the dose which is administered, and it is interesting to note that Abel in a recent *Bulletin of the Johns Hopkins Hospital* had this to say in regard to this active substance: "We are fortunate indeed that our suprarenal glands do not seem able, even in times of emergency, to throw out into the general circulation any but low concentrations of this hormone." He then goes on to point out that life would be incompatible with the sudden liberation into the blood stream at any one moment of as much as 15 to 20 mgm., and that the two suprarenals of an adult contain together at the most only 9 mgm. of this active principle at any one time.

These facts serve to emphasize the need of the gradual introduction of adrenalin rather than its injection within a few minutes, the more so as the action on the various parts of the body of minute quantities is quite different from its action upon the same parts when it is used in large quantities.

THE STATUS OF PHOSPHORUS IN RICKETS.

At one time in the history of therapeutics phosphorus held high rank as a remedy for several widely different conditions, as, for example, in convalescence from pneumonia or during its later stages, and in the treatment of rickets and other disorders or diseases of the bony framework.

Its employment in rickets had its chief justification in Wegner's experiments made about half a century ago, as the result of which he stated that when phosphorus was administered in therapeutic doses to young dogs it greatly increased the thickness and heaviness of the long bones. This resulted in its very large employment both in Vienna and Berlin, but as is pointed out by Hess in a recent issue of the *American Journal of Diseases of Children* a curious difference of opinion arose which practically amounted to a statement that phosphorus cured rickets in Vienna and failed to do so in Berlin.

Those who are particularly interested in this subject will find excellent references to its literature in Hess's article.

It is interesting to note that no less an eminent clinician than Abraham Jacobi was a warm advocate of phosphorus in the treatment of rickets, but it is also interesting that he advocated its use with cod-liver oil, and our present knowledge concerning the content of vitamins in this oil would appear to make it evident that the good results which Jacobi achieved lay in the oil and not in the phosphorus.

Hess's experiments were made upon rats, and it may be argued that the results obtained are not applicable to human beings, but the objections which can be raised to such comparisons seem to hold little weight in this particular research, because the manner of bone development so far as we know is identical in the rodent and in man, and also because of the great care which Hess apparently exercised in excluding fallacious conclusions. He asserts that there is no reason for believing that phosphorus acts differently in the rickets of infants from the rickets induced by dietary conditions in the lower animals, and he points out that the favorable results which have been reported from phosphorus by some laboratory investigators, as well as clinical observers, have depended upon an error in observation, since they have regarded rickets as a condition characterized by a simple lack of calcification, and therefore have drawn the deduction that any agent which is capable of stimulating calcification must be a potent remedy in rickets. He also emphasizes the point that the lesions of rickets do not develop merely from a lack of deposition of inorganic salts in the epiphyses.

While admitting that phosphorus is able to simulate calcification at these points, he asserts that it is unable to calcify the pre-

paratory cartilage or osteoid tissue, and therefore signally fails. It does influence bone formation in what he calls the "subepiphyseal band" and admits that he is unable to explain why this change takes place. It is true that transverse bands of bony tissue can be induced by feeding phosphorus, but this does not indicate that the changes in rachitics can be corrected by its therapeutic employment, because while there is developed a transverse layer of dense compact osseous tissue lying transversely and immediately adjacent to the proliferating cartilage, the change induced is over a very limited area. In any event, whatever may be the changes in the bone which phosphorus is capable of inducing, the fact remains that in rats and in children the administration of phosphorus does not protect against rickets; in other words, in Hess's opinion phosphorus fails not because it is unable to produce any changes in bony development, but because it is unable, to use Hess's words, to bring about calcification within the preparatory cartilage.

THE CONDITION OF THE BOWEL IN ITS RELATION TO BLOOD-PRESSURE.

There are certain leading men in the medical profession in this country and in England who are very firmly convinced that so-called autointoxication arising from the intestinal tube, while often spoken of, does not really exist. Nevertheless this idea is so firmly instilled in the minds of the laity and medical men in general that it is impossible to convince them of the view just quoted. As a matter of fact, barring the opinion of the patient as to his symptoms and the relief which he obtains from the use of some purgative, there is little accurate or scientific basis for this view.

Attention has been called to this subject by an interesting and valuable paper contributed by Alvarez, McCalla and Zimmerman to the *Archives of Internal Medicine*. The first of these investigators is well known because of his work upon disorders of the alimentary canal. Original ideas have characterized his contributions, and the conclusions which he has reached, in this particular paper and many others, are not haphazard, but based upon very careful study.

The paper which we quote definitely denies that intestinal autointoxication has anything to do with the production of hypertension, but he adds these words, that "those who live by washing colons, and those who have for sale laxative drugs and foods and patent syringes," have no doubt that constipation is a large factor in producing high blood-pressure.

Because they wished to reach some definite conclusion in regard to this important subject, these authors analyzed the records of 410 men and 585 women in private practice: 436 were classed as normal, 414 as habitually constipated, 110 as occasional sufferers from constipation, and 35 had diarrhea.

Illustrating their results by charts and tables, which of course we cannot reproduce here, they conclude that in men constipation has absolutely no effect on blood-pressure, that in women there seems to be a pretty definite connection between constipation and a blood-pressure which is slightly lower rather than higher, and that in cases of diarrhea the pressure is apt to be lower, but they consider that their data are too scanty to enable them to reach trustworthy conclusions.

So, too, they point out that low pressures may cause constipation and high pressures may be slightly laxative.

These results are interesting not only for the obvious reasons which we have already mentioned, but also because most of the medicinal springs which possess purgative properties are resorted to by plethoric and hypertensive people who, if they do not suffer from obstinate constipation, nevertheless consider themselves greatly benefited by a course of purgative waters.

The paper of Alvarez cannot be ignored, because of the facts upon which he and his collaborators base their opinions, but we

venture to state that it will be a long while before they are able to convince the majority of the profession that their conclusions are to be freely accepted. Certain it is that in some persons even a moderate degree of constipation produces symptoms which are just as definitely those of mild or severe intoxication with some poison as if they had taken morphine or some other drug which acts as a benumbing agent upon the brain and general nervous system. In other words, the paper that we have quoted, while proving that constipation has no bearing upon hypertension, does not prove that constipation does not result at times in auto-intoxication.

ABDOMINAL PAIN IN CHILDREN FROM EXTRA-ABDOMINAL CONDITIONS.

Of extraordinary import to the surgeon is the avoidance of a laparotomy when the cause of symptoms is elsewhere. It is now well recognized that locomotor ataxia, a beginning pneumonia, or a pericarditis may cause pain referred to the abdomen, so severe that in the past many operations have been performed on the concept of intra-abdominal pathology. It is not so well known that in children the incidence of eruptive fevers is at times attended by severe, persistent abdominal pain. As quoted by Goldbloom (*Canadian Medical Association Journal,* October, 1926), Myers calls attention to abdominal pain, at times severe, associated with tonsillitis, and Brennemann records cases in which laparotomy was performed because of such pain, as a result of which acute mesenteric adenitis was found.

In this relation Goldbloom states there are many instances in which the beginning fever of simple influenzal nasopharyngitis is associated with abdominal pain, and indeed this pain may be the earliest symptom, usually not severe, not associated with tenderness, nor of such a nature as to seriously suggest surgical intervention. There are groups of cases, however, in which abdominal pain is for some hours the dominant symptom. This may be severe and may be accompanied by vomiting. In some cases there may be even tenderness and some rigidity. The discovery of the focus of infection and the transitory nature of the abdominal symptoms will clear the diagnosis. Goldbloom alludes to a second type of case in which abdominal pain develops after complete subsidence of the throat infection. It is severe and accompanied by tenderness. In these cases mesenteric adenitis may well be the underlying factor.

Bearing on abdominal pain in cases of intrathoracic disease, and particularly lower lobe pneumonia and diaphragmatic pleurisy, the common association with rigidity and tenderness and the persistence of abdominal symptoms may make the diagnosis difficult. It will be naturally cleared if it be remembered that, particularly in children, this referred pain is by no means uncommon, and if the primal and underlying condition be diagnosed by its usually characteristic symptoms.

Goldbloom reports in sufficient detail three cases in which the symptoms of peritonitis were almost convincing, but which cleared up on the drainage of intrathoracic accumulations of pus. As for the reason for abdominal pain in, for instance, throat infections, the suggestion is made that this may be due to muscular spasticity incident to sensory impulses initiated in the pharynx and reaching the nucleus of the vagus and glossopharyngeal nerves. The theory of the local effect of a general toxic condition is also to be considered.

BLOOD TRANSFUSION.

The value of blood transfusion in certain emergency cases, and in some chronic diseases, is so largely recognized that there are at present few hospitals unequipped with apparatus, and with at least one person skilled in the method. Nearly all the larger hospitals have a number of typed subjects who for a perquisite are prepared to give a pint of blood. The usual price for this

pint is $25, and in the teaching hospitals the donors are often selected from the medical students whose means are limited.

Rolleston *(British Medical Journal,* November 27, 1926) writing on this subject quotes Ashby to the effect that transfused red blood cells may survive in the recipient's blood for a month. It is further noted that even in cases of pernicious anemia these transfused cells live as long as they would have done had they been injected into the vessels of a perfectly healthy person. Wearn, Warren, and Ames note the survival of the red cells in pernicious and secondary anemia on an average of eighty-three days.

Nearly all those largely experienced in transfusion note reaction following the operation. Kordenat and Smithies hold that habitually transfusions are followed by a rise in temperature of from 100° to 105° F. within a few hours. Bearing on typing Doan is quoted to the effect that even when bloods tested by the ordinary method were found compatible, there are at times well-marked destruction of the leucocytes and a large amount of cellular débris in the plasma. Large transfusions are more commonly followed by reactions than are small ones.

Bearing on repeated transfusions the advice is given to repeat blood tests before each is given since there is reason to believe that blood taken from a donor originally compatible may lead to formation of antibodies in the recipient causing massive agglutination of the red cells and even active hemolysis.

Kordenat and Smithies describe three kinds of reaction: the acute, caused by immediate agglutination and hemolysis, which should be prevented by preliminary typing; delayed or proteolytic, appearing in from one to twelve hours after transfusion and attributable to bacteria or protein cleavage of damaged tissues at an infected focus, often beneficial in its effects; systemic or constitutional reactions, the reason for which is not clear.

Rolleston notes that transfusion is helpful in acute hemorrhage, by supplying the proper volume of blood. A slight rise of temperature is negligible.

Transfusion is serviceable in recurrent or chronic hemorrhage, acting as a styptic by supplying fibrinogen and thereby increasing the coagulability of the blood. In chronic anemia it supplies the deficiency of the red corpuscles. In acute infections it is supposed to supply antibodies, and in CO poisoning active hemoglobin. Infusion of fresh blood acts as a stimulant to the bone-marrow, in bacterial septicemia; moreover, healthy whole blood has bactericidal properties.

Keynes is quoted to the effect that blood transfusion is indicated in acute hemorrhage and anemia, in chronic anemia, in hemorrhagic diseases, in general toxemia, bacterial or chemical.

An absolute contraindication to the method has not been clearly set forth. In purpura hemorrhagica when the bleeding is from the mucous surfaces and the number of blood platelets is greatly reduced, though coagulation time may be normal, blood transfusion, which requires repetition since transfused platelets live but four days, has been replaced by splenectomy.

Torii regards citrated blood as the simplest and safest method of treating hemorrhagic disease of the new-born. Hypodermic injections of whole blood have been successful.

In hemophilia blood transfusion has a transient effect. In acute septicemias the general feeling of the profession is adverse to blood transfusion.

Bearing on the life of the transfused red cells Gulland's blood counts do not bear out the view that corpuscles survive for a long period.

As to pernicious anemia Gulland states that arsenic given by the mouth is immensely superior to all treatments put together, and that cases that will not respond to arsenic given by the mouth will seldom respond to any other therapeutic measure. He holds that a patient with a red count of 1,000,000 and a hemoglobin per cent of 25 is in no immediate danger from anemia since descent to that level has been gradual.

Cruchet after a historical and laboratory study has practiced transfusion of blood

from animals to man. He gave injections of sheep's blood to eight patients, of horse serum to twelve patients. He noticed reactions characterized by pains in the loins; waist pains radiating to the pubis, bladder and abdomen, and provoking sometimes micturition and evacuation; twice vomiting; rigors, sometimes violent; dyspnea followed by sensations of heat and abundant perspiration; slight elevation of temperature and pulse hurry. These phenomena disappeared in from a quarter to half an hour. Twice urine was red, three times urobilin was found, albumin in small amount was common. These urinary changes disappeared in twenty-four hours. There were two cases of nettle-rash. Usually there was an increase in the number of red cells and leucocytes after transfusion. One case of pyemia desperately ill died suddenly following the injection of 1 to 2 cc. of the blood of a horse. The patients who lived all felt better and urgently requested repeated transfusions.

Cruchet holds that bad technique is the usual cause of accidents in transfusion, the main error being too rapid injection of the donor's blood. This author holds that the experimental and clinical researches have proven that transfusion should be given very slowly; the donor should be perfectly healthy and should not have exercised violently for one or two hours previous to the operation. The blood must be used immediately after it passes from the vein of the yielding animal. The transfusion of heterologous citrated blood is harmless. The transfusion of horse blood seems to be tolerated better than that of the sheep or the ox. The blood should be diluted one-third or one-half with physiological serum and adrenalin should be added to the mixture.

Spriggs (*British Medical Journal,* November 27, 1926) describes a simple apparatus for the practice of transfusion and holds that in pernicious anemia transfusion is our most efficient method of treatment.

Keynes writing on transfusion in surgery notes that the supply of blood donors has kept pace with the demand in the hospitals. In the London hospitals there were 13 donors in 1922 and 428 in 1925. There were almost exactly two transfusions in the surgical service for one in the medical. In the great majority of cases results were good, or indeed very good, if septicemia and pyemia be excepted, in which conditions results were good in but three of 25 cases.

Platt advocates the use of defibrinated blood since reactions following its use are comparatively rare. Thus Rolleston states that in from 9 to 66 per cent of cases reactions followed the introduction of citrated blood, but Platt reports that in 66 transfusions of defibrinated blood only four cases had rigors, and three of these were febrile cases of pernicious anemia. Defibrination is quite as simple as citration and does not necessitate an available supply of citrate solution.

Progress in Therapeutics

Medical Therapeutics

Postpartum Care.

In the *Boston Medical and Surgical Journal* of November 25, 1926, KOSMAK expresses his belief that although the rule is not inflexible, the puerperal woman should be kept in bed at least nine or ten days. In a normal case involution may be considered to have progressed sufficiently during this period, but if not, as shown by bleeding, the patient should be kept in bed until this ceases. There is no reason, however, why patients should not move around in bed as much as they please unless some contraindication exists, and he always directs that within twenty-four hours the patient be urged to roll over from side to side. They are likewise urged to actively move the extremities, and at the end of the first week are gotten into the knee-chest position. If no perineal sutures have been used patients may be allowed to sit up in bed to nurse their babies on the third or fourth day, or if perineal sutures have been inserted, as soon as these are removed. Most women can nurse their babies much easier in the sitting position and are relieved by being allowed to assume it. When the patient gets out of bed she should be allowed to sit up for at least an hour or two on the first day and then twice on the second. He does not favor the usual twenty-minute sessions. Calisthenic exercises are of great importance and should be begun within two weeks after the baby's birth. They should be very simple and consist merely of bending and stooping movements which are carefully demonstrated by the physician or nurse. A great deal of the backache and discomfort following delivery can be avoided by the bed exercises and the simple calisthenic movements referred to.

It is essential that a complete examination of the patient be made not later than two weeks after delivery in which particular attention must be given to the condition of the breasts and the pelvic organs. The vaginal examination should determine above all things the position of the uterus, its degree of involution, mobility, and sensitiveness. If a uterus is large and boggy, is sensitive, not freely movable, it means that the organ is not well involuted and that we are dealing in addition with parametritis that may, unless attended to, lead to later invalidism. Malpositions of the uterus at the end of two weeks unless congenital can often be overcome by the knee-chest position, but pessaries to retain the uterus should not be employed at this time. Another examination should be made at the end of four weeks and a corresponding one at the end of two and three months. Malpositions of the uterus are frequently not discovered until the latter examinations, and if present a retroversion pessary is indicated. Unless associated with inflammation most retroversions can be manually corrected and much trouble saved. There is a class of women, however, afflicted with congenital retroversions which likewise manifest themselves at the second or third month, and in such correction is difficult or impossible.

As a supplement to the routine care already outlined there are a few special conditions involving the postpartum period to which he would like to draw more specific attention—among them hemorrhage and sepsis.

Hemorrhage is usually regarded as one of the complications of labor, although we generally refer to it as postpartum hemorrhage. In addition to the acute loss of blood before or incident to the delivery of the placenta, there are hemorrhages occurring subsequent to this period to which attention must be directed. Hemorrhage immediately following delivery has two physiological sources that should be recognized, but for which preventive measures cannot ordinarily be applied. He refers to either prolonged or rapid delivery. Prolonged labor with extreme exertions of the uterine muscle is very apt to result in undue

postpartum relaxation of this organ which is not overcome by the usual massage of the fundus. As soon as the child is born and cared for, the attendant's entire attention should be directed to hemorrhage in the mother. As a rule, bleeding from the uterus itself is restrained while the placenta is *in situ*, although considerable bleeding may take place during the act of separation which cannot always be diagnosed.

As the care of the fundus is usually left to some one else while the attendant is busy with the repair of perineal lacerations, undue distention of the uterus with blood may result. For this reason the routine injection of pituitary extract has been recommended as soon as the baby is born, and a series of cases have been studied in which the amount of blood loss has been accurately measured. It would appear that the procedure is of value and that the hemorrhage is correspondingly reduced where this is resorted to. He believes, however, that in many cases it results in early separation of the placenta and that this is extruded prematurely, or when extruded is followed by a corresponding relaxation of the uterus because the effect of the pituitary is only transitory. Moreover, as we never know how much hemorrhage will take place after the expulsion of the placenta, the injection of pituitrin should be reserved for this period unless some direct indication is present for its immediate administration.

There is still considerable doubt as to whether early expression of the placenta is preferable to a long period of waiting for natural expulsion to take place. Much can be said on both sides of the question. After physiological separation has taken place there is no value in having this foreign mass of tissue retained, and as we know that it takes normally about twenty minutes for such separation it would appear advisable to subject the uterus to compression during one of its contractile efforts at the expiration of this time. If the placenta is loosened it will readily come away, and if not we can afford to wait longer. If the placenta does not come away readily there is a question as to whether it should be left in place or removed manually. It is generally admitted that manual removal of the placenta is a dangerous procedure and should not be undertaken except as a matter of necessity, and then with the utmost careful aseptic precautions. Retention of the placenta should be carefully differentiated from adhesions of this organ. A retained placenta may be fully separated and simply held back by a tonic contraction of the cervical ring, especially if pituitrin has been given. There is nothing to do in such cases but to wait a favorable time and expression by Crédé. He has seen a uterus almost everted by too strenuous efforts at expression in a condition of this kind, and the administration of a small amount of anesthetic often relaxes the cervix sufficiently so that the expression can be completed.

The Mineral Elements in Nutrition.

In an editorial on this subject, the *Lancet* of November 20, 1926, says it is a striking fact that we have no very definite idea of the amounts of calcium, phosphorus, iron, or iodine that are required by a growing child or a nursing mother, or of the amounts that are supplied by different human dietaries. Sir Robert Greig points to the increased consumption of cheap carbohydrate foods and highly-refined foodstuffs. Dietaries including large proportions of these foods and little milk or vegetables should presumably be placed in the same category as artificial farm rations, for they are deficient in calcium and possibly other minerals. It seems probable that malnutrition in children may arise from this cause. In the poorer classes, whose children are most likely to be fed chiefly on such foods, both stunted growth and rickets are common.

Without dogmatizing on the relative parts played in the causation of rickets by hygienic conditions, lack of vitamins, lack of sunshine and lack of lime, it is fair to point out that a condition resembling rickets can be produced or avoided in farm animals by altering the proportion of minerals in the food, and that the Rowett Research Institute has shown the effect of sunshine in healing rickets to be bound up with its effect

in increasing the absorption and utilization of the calcium in the food. As Greig says, milk is a perfect food. But many children are fed, not on human milk, but on cow's milk; and cow's milk, compared with human milk, contains more calcium, but less iron. Further, it is often supplemented from an early age with highly-refined cereal products containing little or no iron. Is it not possible that one of the causes of anemic conditions in infants may be an actual shortage of iron in the food? The question of whether goitre is due to deficiency of iodine is by no means settled, but the results, as far as they go, on domestic animals and human beings are in general agreement and seem to point to a possible iodine deficiency in certain areas.

It is pretty certain that the danger of mineral deficiency in the diet is less in the case of human beings than in the case of farm animals, but there is undoubtedly much malnutrition suggestive of qualitative errors of diet. The resemblance between these conditions and the conditions arising in animals on diet deficient in mineral elements is sufficiently close to suggest that deficiency of minerals may be one of the factors involved. Such deficiencies would be more likely to assume importance under conditions of restricted diet. In war-time the food of an isolated besieged population is more restricted, and therefore more likely to be ill-balanced than normally, and war-time is always associated with ill health and disease, in particular with malnutrition in chillren and nursing mothers. Rubner calculated the inorganic content of the rationed food of the Germans in 1917-18. The daily intake of calcium, phosphorus, and iron was estimated in grammes at 0.226, 1.922 and 0.089 respectively, compared with 1.221, 4.472, and 0.154, the estimated pre-war intake. Greenwald has suggested plausibly that this change in the inorganic content of the food may have had some influence on the causation of "war edema." It is possible that in the study of human dietetics too little attention has been paid to the inorganic elements in the food, and that the investigation into this subject would give interesting results.

Recent Advances in the Treatment and Diagnosis of Bronchiectasis.

In the *Lancet* of November 27, 1926, RIVIERE says that in the days when the chest was still the undisputed property of the physician, before ever the surgeon began to look in at the door, cases of bronchiectasis, treated on common-sense lines, often did remarkably well, and they still continue to do so. But recently he has been shocked to see, in an article on the treatment of bronchiectasis by a distinguished surgeon, under the subheading Medical and Hygienic Therapy, the words "This is without effect." Evidently it is time for the physician to reassert himself! In practice one may say, he thinks, that the ordinary treatment used by physicians in the more recent past, if persisted in by the patient, gives adequate and satisfactory results in a majority of cases. It is well to recognize at the outset that the anatomical condition bronchiectasis, once established, is incurable, but that nevertheless good health may be maintained in many cases in spite of it. It must not be supposed that removal or elimination of the diseased area is necessary or possible except in a few cases, and the number suitable for surgical measures is really comparatively small. Even the surgeons as a rule display no undue enthusiasm. Bedblom, of Rochester, U. S. A., refers to these cases as "the most thankless task in surgery." Sauerbruch, who has operated on 69 cases up to 1920, says "The surgical treatment of bronchiectasis is the most difficult and thankless chapter in the whole of lung surgery." Evarts Graham finds that he operates on fewer and fewer cases; he was content to treat 24 of 40 cases in children by ordinary conservative measures. These measures must now be referred to.

Only two of them are of outstanding importance, and we may let the rest go by the board. He refers to postural drainage and the creosote chamber treatment introduced by Arnold Chaplin in 1895. With these two properly applied, where bronchial drainage is free, we can bring to clinical recovery and keep in comparative health the majority of cases of bronchiectasis, and

that without danger to life. Unfortunately, human nature being what it is, it is very difficult to avoid relapses through neglect of treatment. Life, as we know too well, is apt to become as years advance "just one darned thing after another," and it is scarcely surprising, perhaps, that patients resent, and after a time neglect, any addition to the daily ritual. Other methods of treatment, including surgical measures, come into consideration only where postural treatment and creosote chamber fail or are inapplicable, or where the patient demands some release, even at danger to life, from the burden of a somewhat hampered existence. Then must we consider, one by one, the means which modern progress has prepared for us. Let us take a problematical patient and consider the lines on which we should deal with him.

Often we find the patient propped up in bed and overflowing with secretion like a full jug. He has avoided movements which bring on cough, and so his secretion has accumulated. The first process will be to empty him out gradually till he can lie flat, and thereafter, as his condition allows, begin postural drainage in the knee-elbow position, and later over the side of the bed, and, presently, if the case appears to be an ordinary bronchiectasis, the creosote chamber. In the meanwhile raidograms will be obtained whereby we can ascertain where the trouble is situated, whether there is any question of neoplasm, aneurism, foreign body, or abscess formation, what amount of fibrosis is present, and, if necessary, with the assistance of lipiodol, what is the nature of the bronchiectasis, and how far, if at all, it affects the opposite lung, for of 318 cases observed in the Rochester Clinic 28 per cent were bilateral, and in another 38 per cent the condition of the second lung remained uncertain. Among 54 autopsies in bronchiectasis Lebert found 52 per cent unilateral and 48 per cent bilateral.

Now under postural drainage and creosote vapor in many cases the sputum will lose its offensive odor and much of its purulent character, and become greatly reduced in volume, the patient's toxic condition will clear up, and an extended trial of these measures will be indicated, especially if disease is bilateral. If, however, there is question of a foreign body or of abscess formation, or the symptoms date from an operation, especially a tooth extraction or tonsillectomy; if there is suspicion of bronchial obstruction other than aneurism; or if drainage seems hampered and the sputum remains offensive, and general improvement is slow, then a bronchoscopic examination may help to clear up both diagnosis and treatment.

The Incidence of Dental Caries in Pregnant Women.

In the *American Journal of Obstetrics and Gynecology* for November, 1926, ZISKIN concludes that pregnancy, *per se*, cannot be given as a cause of caries of the teeth. The data which he gives in his paper show that there is a rise in the frequency of caries with an increase in age. The number of pregnancies does not influence the frequency of caries of the teeth.

The Relation of Basal Metabolism to Sterility.

In the *American Journal of Obstetrics and Gynecology* for November, 1926, LITZENBERG states that while the number of cases in this preliminary report are not sufficient to justify drawing final conclusions, the findings are significant because:

1. The relation between the thyroid gland and the ovary is well known.

2. Myxedema is certainly a cause of sterility.

3. Lesser degrees of hypothyroidism are, by the results of their investigation, apparently also a cause (or index of a cause) of sterility.

4. A normal basal metabolism rate is apparently necessary to conception and to a normal continuance of pregnancy.

5. Properly supervised thyroid medication will restore the basal metabolic rate to normal and in some cases result in conception.

6. Women who habitually abort should have their basal metabolic rate taken.

Treatment of Eclampsia.

STANDER, in the *American Journal of Obstetrics and Gynecology* for November, 1926, states that the chemical and pathological findings with anesthesia strongly indicate that the eclamptic patient should not be subjected to a general anesthesia. From the results recorded in this paper it seems quite logical to assume that the reduction in maternal mortality in eclampsia incident to the change from radical to conservative treatment is due not to the change in procedure but rather to the fact that a much smaller proportion of patients received general anesthesia.

His chemical and pathological findings further indicate that the use of magnesium sulphate to control the convulsions is not warranted. He feels, however, that further work along these lines is required before any sweeping statement can be made.

In the case of morphine and chloral the evidence is of such a character that one may expect beneficial results from their use. Morphine apparently produces no liver lesions, and furthermore has a definite tendency to raise the carbon dioxide combining power of the blood; chloral, while it seems to give rise to congestion of the liver, does not lead to damage of its cells.

The use of insulin with a protective dose of glucose in severe cases of eclampsia in which the carbon dioxide combining power is 30 volumes per cent or lower, and where there is a hyperglycemia, seems quite justifiable from clinical experience as well as from their experimental studies in animals on the effect of insulin on the various types of hyperglycemia and acidosis. It must be emphasized, however, that as far as we know at present, the only good that insulin may do in such cases is to combat the acidosis; and he feels convinced that certain patients might be saved from a fatal outcome if one could successfully carry them over the marked acidosis so often encountered in eclampsia. It is equally true that we sometimes have a type of eclampsia where acidosis is not a characteristic feature, and yet the patient may succumb. It is thus clear that our treatment must remain empirical and tentative until we definitely know the cause of eclampsia.

In connection with the acidosis and hyperglycemia of eclampsia, it is interesting to bear in mind the work of Mann and his associates on the physiology of the liver. The blood picture of eclampsia certainly reminds one of the changes produced by removal of the liver, especially when one considers the high uric acid content of the blood together with the changes in blood sugar, lactic acid, and hydrogen-ion concentration. That glucose therapy may be of value in certain types of disturbed liver function seems quite rational. Mann suggests, for example, that glucose may be of value where the supply of glycogen in the liver is depleted, following the marked hyperglycemia of ether anesthesia.

It follows logically that in certain of the toxemias of pregnancy associated with marked disturbance in liver function, as is evidenced by pathologic lesions in that organ, the use of glucose may be of value, and there is clinical evidence to show that this contention may be correct. Duncan and Harding, Titus and others have advocated the use of glucose in the vomiting of pregnancy. It should be stated that in his clinic they have tried the glucose as well as the insulin and glucose therapy for pernicious vomiting of pregnancy, and that while each of these treatments is of decided value in certain patients, we nevertheless encounter others in whom all attempts at treatment seem futile. This is not to be wondered at when we consider how little is as yet known concerning the etiology of the condition. Here, just as in eclampsia, the treatment must remain empirical and tentative until the true cause of the disease is discovered.

The results of their experimental work on general and local anesthesia lead to the conclusion that in certain of the severe types of eclampsia it may be advisable to end the pregnancy under local or spinal anesthesia, but as yet we have no clinical evidence in support of such a contention. In two con-

trol experiments on dogs, novocaine, or procaine, was injected subcutaneously in amounts greater than are ordinarily used in practice, and the blood chemistry studied. Twenty cubic centimeters of a two-per-cent solution of procaine were injected subcutaneously and produced no change in the blood constituents during a two-hour period of observation in which samples of blood were withdrawn and analyzed at fifteen-minute intervals.

An analysis of the results obtained in the conservative treatment of ante- and intrapartum eclampsia up to March 31, 1926, shows that the mortality was 1.9 per cent in the mild cases according to Eden's classification, and 21 per cent in the severe cases. It appears that the treatment of the former by the Stroganoff technique gives a very satisfactory result; while in the case of the severe type improvement is urgently demanded. For this reason they have tentatively concluded to continue to treat the former by the Stroganoff method, but to ascertain what results will follow the prompt delivery of severe cases under spinal anesthesia. When, however, the patient seems to be in danger from a profound acidosis as evidenced by a fall of the CO_2 combining power to 30 volumes per cent or less, he shall continue to use insulin and glucose, which his experience up to this time indicates is of value in combating that condition.

He concludes that ether, chloroform, nitrous oxide, and ethylene produce changes in the blood constituents very similar to those seen in eclampsia.

These general anesthetics also produce pronounced liver lesions as well as less marked changes in the kidneys.

The use of these general anesthetics in the treatment of eclampsia seems open to objection.

Blood studies on anoxemia and eclampsia suggest that in the latter condition deficient oxidation may play a part.

Peptone, albumose, and histamine produce a blood picture suggesting an anhydremia. The evidence so far adduced, both chemical and pathological, makes it improbable that any one of them is to be regarded as an etiological factor in the causation of eclampsia.

Peptone, albumose, and histamine produce degenerative liver lesions similar to those associated with vomiting of pregnancy, but as yet they hesitate to assume that they play any etiologic rôle in its production.

The fact that morphine raises the CO_2 combining power of the blood and does not damage the liver, affords justification for continuing its use in the treatment of eclampsia.

The chemical and pathological findings with magnesium sulphate speak against its use in eclampsia; but further work is necessary before a definite conclusion can be reached.

The use of glucose, as well as that of insulin and glucose, seems to be of value in certain cases of vomiting of pregnancy and eclampsia, but not in all.

In his experience a modified Stroganoff technique has led to a marked reduction in the mortality in mild cases of eclampsia.

The treatment of severe cases of eclampsia is not yet satisfactory, and it is a question whether prompt delivery under spinal anesthesia may not give better results than we have heretofore obtained.

The Treatment of Granuloma Inguinale with Tartar Emetic.

In the *American Journal of Obstetrics and Gynecology* for November, 1926, McGLINN states that tartar emetic is a specific in the treatment of this disease. Local treatment and excision are of no value, and *x*-ray, while of some benefit, cannot be used sufficiently long to effect a cure. He relies entirely on the intravenous use of tartar emetic and local cleanliness. While this drug is a specific it has several disadvantages, which makes its use impossible for a long enough period, in many cases, to effect a permanent cure. One-tenth gramme of the drug is dissolved in 10 cc. of sterile salt solution and given intravenously at weekly

intervals in ambulant cases and every other day in hospital cases. The action of the drug is prompt; beginning healing can be observed within forty-eight hours after the first injection. The number of injections required to completely heal the lesion depends on its extent and location. Lesions in the female heal less rapidly than those in the male.

One disadvantage of antimony injections is the tendency to obliterate the veins. For this reason he starts the injections into the veins on the back of the hand, and then go higher in the arms as the veins below become obliterated. In a few of their cases they have been obliged to discontinue treatment before complete healing had occurred because of obliteration of all available veins. As far as he knows no satisfactory intramuscular preparation has been perfected.

The second objection to antimony is the severe rheumatoid joint pains which follow within twenty-four hours after the injection. At times these pains are so severe that patients refuse to continue treatment.

A case should not be considered permanently cured just because complete healing has taken place. These cases have a tendency to recur and should have several courses of treatment after the lesion has completely healed. It is practically impossible to keep these patients in the hospital once their lesions are healed, and on their discharge they are instructed to report to the clinic for further treatment. This they seldom do until they have a recurrence, when they are again admitted to the wards. They suffer so much from the treatments that they will not return for the injections as long as they are well. Except for these rheumatoid pains they have not observed any serious effects from the use of tartar emetic. Randall observed several cases of kidney insufficiency following its use, and realizing the toxic nature of the drug sought an antimonial compound of lesser toxicity. He obtained from Abel two antimonials, sodium antimony thioglycollate and a new synthetic composition the triamide of thioglycollic acid. Cases treated with these two preparations healed as promptly as others in which tartar emetic was used, and there was an entire absence of toxic symptoms and rheumatoid pains. Randall has had these two compounds prepared by a prominent pharmaceutical house and is making a study of their therapeutic value.

In conclusion it is to be remembered that inguinal granuloma is endemic in northern latitudes, and any vulvar lesions which resist ordinary treatment should be suspected of being granuloma. Antimony is a specific for this disease. The lesions have a tendency to recur, and a series of ten intravenous injections should be given after complete healing has been secured.

The Treatment of X-ray Nails.

In *American Medicine* for November, 1926, POPE insists that the essential of treatment is patience and perseverance. Without this little can be accomplished. The first thing is to clean, soften and improve the nutrition of the nail, the distal phalanx, and the skin. Cleanse the hands and especially the nails with a soft nail-brush and a good soap, ivory will do. Bathe the hands in very hot water and then immerse them for a few seconds in very cold water. Rub them dry with a crash towel. Now anoint them with olive oil and rub same into the nails, especially into their corners, into the skin of the finger-tips, and over the hand and wrist generally. Take a little time to work the oil in thoroughly. This had best be done at night, the surplus oil left on the fingers, and a pair of gloves worn during the night. In the morning the hands should be cleansed again, rubbed with olive oil and the oil wiped off with a towel. In order to get the olive oil into the edges of the nail and under the nail, use an orange stick. If great difficulty is found in getting the nails clean, peroxide of hydrogen will oftentimes remove the dirt and soften the hardened skin.

After this treatment has been followed out for about six or eight weeks one should seek a real good manicurist, explain the condition, and have her manicure the nails with

very great care. When the manicurist has completed the work, thoroughly cleansed, trimmed and prepared the nails, a glaze should be put upon them. The action of the glaze is manifold. It fills in between the ridges, closes up the porosity of the nails, gives them a smooth and glistening appearance, and prevents the collection of dirt (the best preparation that he has found for this purpose is Glazo) upon the nails, rendering them easy to clean. The olive oil should be continued at night and still rubbed upon the edges and under the nail as well as over the hand until the skin becomes soft and pliable.

Among the physical measures that may be employed is that of the alternation of hot and cold water. The action of this is to stimulate profoundly the circulation and neural activity of the extremity. The high-powered incandescent light, either from a blue or white globe, will increase the circulation of the part and does some little good but does not seem to be of much value. The infra-red light, however, can be used with the expectation of decided benefit, but alone it will not bring about the condition desired. He has not seen any real good derived from any of the high-frequency currents, vacuum, diathermy, etc.

From having very bad, troublesome and painful nails he has by patience, care, by frequent visits to the manicurist and the following out of the treatment outlined obtained a very good set of nails presentable in appearance and free from the many and disfiguring conditions previously existing. It is no longer necessary to employ olive oil, or physical measures. Ordinary care and the thorough attention given by the manicurist is all that is necessary to keep the nails in most excellent condition. The price of life is eternal vigilance. Any one who has had *x*-ray nails and has succeeded in getting his fingers and nails in good condition must continue to take care of them or they will retrograde. The difference in appearance of the fingers and nails, together with the increased comfort, should be sufficient incentive to take the short time required to keep them in excellent condition.

Mental and Physical Rest in Pulmonary Tuberculosis.

In the *Medical Journal and Record* of December 1, 1926, KNOPF emphasizes the fact that the physical symptom which deprives the patient of the greatest amount of rest is of course the cough. While bed rest is an invaluable remedy, it is not always sufficient to control either the useless or the useful cough. The useless cough being merely due to an irritation in the larynx or a nervous habit, can be treated by psychotherapy, by telling the patient that he must try to suppress it by will power, and that he is only allowed to cough when he feels that he must expectorate. A dietetic help to combat tenacious sputum is the ingestion of plenty of table salt with the patient's meals. In urging him to discipline his cough we must not fail to tell him never, under false modesty, to swallow his expectoration, as an infection of the intestinal tract may result. Little sips of water, a sudden inhalation, controlled diaphragmatic respiration, are also physical means to stop useless cough, which is not only annoying to the patient himself, but also to those near him.

Knopf's great teacher, Dettweiler, one of the pioneers of the sanatorium treatment, was in the habit of telling his patients that coughing in public merely on account of a tickling in the throat was as impolite as scratching the head in public because it itched. He has found that a more impressive warning is to tell the patient that useless coughing—that is to say any dry cough—irritates the throat, and when the habit becomes chronic there is danger of laryngeal complication. If laryngeal complication does set in, or if there is fear of it, the ideal remedy is of course absolute rest of the vocal cords, and he always quotes to his patients the case of Sir St. Clair Thomson, of London, who cured himself of a serious pulmonary and laryngeal tuberculosis by a year of absolute silence. That the useless cough can be completely controlled through psychotherapy has been amply demonstrated in sanatoria, where patients are taught to master the habit of useless coughing, and

hardly ever cough at the table. Compared with any other place where the same number of people congregate, there is often less coughing in a well-conducted sanatorium for tuberculous invalids.

Of course, there are some rebellious coughs which must be treated by medication. Cough mixtures with opiates may even become necessary; the same is true in some cases of excruciating pain in the chest which can only be relieved by narcotics. Since the continued use of these drugs may lead to addiction, it is a wise practice for a physician, in prescribing the cough mixture or directly administering codeine, morphine, veronal, or similar products, to diminish the dose gradually, omit the drug occasionally, and finally leave it out of the cough mixture entirely, or replace the morphine, codeine, or veronal tablets by tablets made of substances of a more innocent character. For example, a cough mixture made of syrup of wild cherry or of Virginia prunes, with syrup of tolu, will taste just the same whether or not it contains the narcotic. Such little deceptions may sometimes be necessary in private as well as in hospital and sanatorium practice. Purely nervous anorexia may also be combated in a similar way by giving an innocent tonic.

The dietetic directions for a bed patient must of course be given to the nurse, and to the ambulant case they should preferably be given in writing. In his anxiety to gain weight the patient must be guarded against stuffing, which is not productive of either physical or mental rest.

To assure rest of body, mind, and soul, the patient should be asked directly if he has any mental anxiety, and if it is within the power of the physician to remove it, he should endeavor to do so. If he worries on account of financial matters, the relatives should be informed of it so that steps for relief may be taken. The patient who worries may not eat well, and his recovery will be inevitably retarded thereby. Worry and anxiety are among the greatest obstacles to the successful treatment of tuberculosis, particularly among the poor, when the patient is the breadwinner of the family. Doomed to temporary inactivity, as otherwise he cannot be restored to health, he usually broods over his fate and worries about how those who are dependent upon him will get along.

Some Uses for Alcohol.

In an editorial on this subject, the *Ohio State Medical Journal* for December, 1926, calls attention to the fact that the National Wholesale Druggists' Association, in annual convention at French Lick, Ind., recently took prohibition officials to task for usurping the rights of physicians by dictating the amount of liquor that may be prescribed for patients.

"The prohibition bureau," the statement asserts, "is undertaking to prescribe for the sick, and substitute bureaucratic theory for the bedside experience of the physician by its restrictions on medicinal liquors.

"Until quite recently the bureau followed the sound policy of permitting such foreign wines to be imported and dispensed upon prescriptions as might be requested by reputable physicians and hospitals. Within the last few months the bureau has adopted a new policy, taking the position that no imported wines, except champagne, port, and sherry, have any special therapeutic value.

"The amount of denatured alcohol diverted to bootlegging is grossly overestimated sometimes by persons of high authority. The officials responsible for these reckless statements appear to base them on the assumption that the total increase during recent years in the consumption of alcohol, whether pure, specially denatured, or completely denatured, has been illegally used.

"The fact is that not only has there been a substantial growth in alcohol-using industries established prior to prohibition, but there has also been a surprising development in the utilization of denatured alcohol in new directions.

"Prior to 1918 very little alcohol was used as an antifreeze mixture in automobiles.

Figures compiled by government branches show a current consumption to this use of 40,000,000 gallons per year. In addition, there has been a heavy increase in alcohol use in new industries such as artificial silk, bakelite, and others."

Dietary Studies in New Orleans in 1925.

In the *American Journal of Physiology* for December, 1926, BORGSTROM, BOST and HAFKESBRING report that a series of experiments was carried on to show the number of calories eaten by a normal individual in a place of warm climate.

The results show that none of the values obtained are less than those given by Rubner, and two are close to those given by Atwater; that is, the calorific intake in the south does not vary much from that of the north, but the protein intake is lower.

The Use of Vaccines and Sera in Communicable Diseases.

In the *Medical Journal and Record* of December 1, 1926, CLOCK states that in the development of vaccines and sera, laboratory research and clinical observation should go hand in hand, each acting as a control on the other.

The universal application of toxin-antitoxin for immunizing all children of preschool and school ages would soon result in community protection from diphtheria.

Antimeningococcic serum should be injected by gravity into the spinal canal between the third and fourth lumbar vertebræ or into the lateral ventricles through the open fontanel, so that it will come directly in contact with the meningococci.

While waiting for confirmation of the probable discoveries of Tunnicliff and Ferry, serum from convalescent measles patients must be depended upon for the prevention of measles. Doses of 6 to 10 cc. are usually sufficient to prevent the development of the disease in children who have been exposed less than five days to measles.

Prophylactic vaccination against pneumonia is particularly indicated for persons who are very susceptible to pneumonia and who suffer from repeated attacks of the disease, and for large groups of persons who are living together under abnormal conditions, such as recruits in time of war. Pneumococcus vaccine could probably also be used with benefit in the case of industrial workers who are constantly exposed to cold and wet.

All cases of Type I pneumococcus pneumonia should be treated as early as possible with Type I antipneumococcic serum, administered intravenously in doses of 100 cc. and repeated every eight hours until symptoms indicate that the infection has been overcome.

The researches of Felton at Harvard University give promise of eventually placing the serum treatment of pneumonia on a more practical and efficient basis. His refined and concentrated solutions of the antibodies in antipneumococcic sera are now being subjected to clinical trials in several large cities.

The suspected rabid animal ought to be confined and kept under observation for one week, because if the animal is in the incubation stage at the time of the biting, it will show symptoms of rabies and die within that period. However, the safest procedure is to begin antirabic treatment at once, without waiting for a positive diagnosis to be made from the animal.

Persons susceptible to scarlet fever sometimes give a negative Dick test. This may be due to weak binding power of the toxin with the tissue cells or to sudden deterioration of the toxin.

The best dose of scarlet fever toxin for immunization has not yet been definitely established. The rash in scarlet fever indicates the necessity for antitoxin treatment, while the extent of sepsis is the guide to the amount of antitoxin needed. The smallest or basic therapeutic dose should be an amount that will neutralize 600,000 standard skin-test doses of toxin. Treatment should cause, within twelve to eighteen hours, a marked subjective improvement, critical fall of temperature and pulse, and fading of the rash.

During 1925 the United States reported more smallpox than any other country except India. The many advantages of the puncture method of vaccination should appeal alike to the health officer, school physician, and general practitioner.

The experience gained during the World War emphasized the immense value of antitoxin in the prevention of tetanus, and demonstrated the importance of freely cutting away all dead tissue within and about extensively lacerated and contused wounds.

Extensive experience has proved that the intraspinal method of administering tetanus antitoxin should be given preference over all other methods. The dose recommended comprises five thousand to ten thousand units intraspinally and ten thousand units intravenously on the first day; five thousand to ten thousand units intraspinally on the second day; five thousand units intraspinally on the third day; and five thousand to ten thousand units subcutaneously on the fourth day.

Typhoid triple vaccine gives more frequent and more severe reactions than does the plain typhoid vaccine. Therefore the plain typhoid vaccine is now recommended for general use. By giving the standard amount of vaccine in a greater number of small doses, reactions may be avoided.

The majority of reports in recent years confirm the statement that freshly prepared vaccines made from Bordet bacilli have a beneficial effect on whooping-cough. Pertussis glycerol vaccine insures the equivalent of a freshly prepared vaccine at all times.

Reports indicate that the vaccine is probably from eighty-five to ninety per cent efficient as a prophylactic; and when used in the treatment of whooping-cough it diminishes the paroxysms, lessens the vomiting, shortens the duration of the disease, and tends to prevent bronchopneumonia.

Severe serum reactions occur almost wholly after primary injections of serum. The fear of repeating a serum injection because of having sensitized the patient is practically groundless, for there need be no fear of giving a second intramuscular or subcutaneous injection to any person who has not suffered severely from the first injection.

The eye test is now recommended as the most reliable method of testing for hypersensitiveness to horse serum; but for practical purposes this test may be limited to those patients whose history of asthma or hay-fever indicates that severe serum reactions will develop. With such a history and evidences of hypersensitiveness as revealed by the eye test, fractional administration of serum in doses of 0.1 cc. subcutaneously and increased every fifteen minutes may be successful in inducing some tolerance.

Some Aspects of Hypertension.

In the *Journal-Lancet* of December 1, 1926, ULRICH reviews briefly what is known of cholesterin metabolism. Its origin is in the food. It is absorbed as an ester and circulates in the blood, two-thirds as an ester, one-third as a free state. Its level in the blood is fairly constant. Its excretory organ is the liver. The ovary, gonads and adrenals are repositories. It is found in the bile in a free state varying from 2 to 6 per cent. It is changed by saprophytes in the bowels to coprosterin. Another portion is reabsorbed. It is suspected that bile acids are formed from cholesterin. While oxidative evidence is at hand it is not a source of heat. It is present everywhere in the body. There is some evidence that there is an endogenous formation. Its characteristic property is to resist mixture with water, and according to its concentration to influence the cell membranes of the body and to absorb poisons. Cholesterin balance is only obtained by means of intestinal digestion. Fat is necessary for its solution. Besides insufficiency of the liver as a source of retained cholesterin there are: mobilization of lipoids in nephrosis; ether narcosis; and infection. In pregnancy there is a rise of cholesterin in the blood with a corresponding fall in the bile. After labor there is a reversal of the curves to normal.

The high content of cholesterin in the blood of hypertensives as far as can be

determined must be assumed to be due to liver insufficiency. In this connection the use of liver extracts to reduce tension has been of acute interest within the last few years. Major has been able to make a liver extract which is free from choline, histamine, or peptone. MacDonald's extract contains no protein derivatives. These men so far have been satisfied with reports of blood-pressure curves following the use of these extracts. How or where they act in reducing tension has not been mentioned. Their successful reports again emphasize the possible rôle the liver plays in regulation of metabolic processes. Ulrich's next effort in the study of this functional condition will be in seeing what effect the injection of these extracts has on the cholesterin level of the blood; and in cases in which there is hypercholesterinemia to see what effect diet, rest, and variations of ions will have on cholesterin levels.

On the Mechanism of Prevention of Fatal Parathyroid Tetany by the Oral Administration of Magnesium Chloride.

In the *American Journal of Physiology* for December, 1926, SLOAN says that completely thyroparathyroidectomized dogs can be successfully carried through four to five successive attacks of tetany occurring over periods of from four to seven days by means of morphine sulphate, which is a known depressant of the central nervous system.

The action of morphine sulphate in this respect is similar to that of magnesium chloride given orally to prevent the occurrence of tetany after complete thyroparathyroidectomy.

When morphine is used to control parathyroid tetany the blood calcium levels do not always seem to parallel the condition of the animal; *i.e.*, the blood calcium level during one attack of tetany may be brighter than that of a previous tetany-free period.

Sloan states that morphine gives promise of being a valuable emergency agent for the control of parathyroid tetany, either before other more slowly acting therapeutic agents take effect or at a time when other methods should not be tried because of the danger of inducing a fatal attack of tetany.

Chronic Biliary Tract Disease.

In the *Archives of Internal Medicine* for December, 1926, MATEER and HENDERSON state that their study is mainly based on a detailed analysis of the diagnostic findings in ninety-four consecutive operated patients with chronic gall-tract disease.

Recent pathological studies indicate that chronic gall-tract disease involves not only a chronic cholecystitis, but also a chronic interstitial hepatitis and a chronic cholangitis with dilatation of the larger extrahepatic bile ducts. The relative degree of involvement of the gall-bladder, bile ducts and liver varies greatly in the individual case, making it desirable to use various methods of diagnosis to obtain information regarding the involvement of these three parts of the biliary tree.

The history, when carefully taken, affords most valuable evidence for the presence of gall-tract disease. Furthermore, it is indispensable to a correct functional diagnosis and a proper evaluation of the gastrointestinal symptoms. This is especially important in patients who have evidence of several pathological conditions in the gastrointestinal tract.

The physical examination aids greatly in the differential diagnosis of gall-tract disease from chronic irritable colon, chronic appendicitis, renal disease, and other less common conditions.

Graham's contribution, cholecystography, affords reliable information about the gall-bladder diagnosis. The oral administration of the dye is unobjectionable, and also reliable, if a proper and uniform technique is followed. In those cases presenting suggestive evidence of gall-bladder disease in the cholecystograms, without definite clinical evidence, they prefer to repeat the oral method rather than resort to intravenous administration. Other Roentgen-ray meth-

ods are still of value in a smaller percentage of cases, and should be used in conjunction with cholecystography.

Duodenobiliary drainage affords important direct evidence of chronic cholangitis, and valuable indirect evidence of cholecystitis, in the finding of bile-stained clumps of pus cells and bile-stained colonies of bacteria, frequently in association with bile-duct epithelium. Showers of clumped crystals in the bile strongly suggest gall-stones.

By utilizing biliary drainage to determine the earliest stages of bile-duct infection and inflammation, cholecystography to ascertain the pathological physiology and anatomy of the gall-bladder, and a serum bilirubin determination to gain some idea relative to the liver involvement, the diagnosis of early gall-tract disease, suspected on the basis of clinical symptoms, can now be confirmed and refined.

As in other fields of diagnosis, a close correlation of the data obtained from various sources is of utmost importance.

Home Treatment of Tuberculosis by Artificial Pneumothorax.

In the *Journal of the Medical Society of New Jersey* for December, 1926, FINE asks the question, What are the objections to home treatment? The following are claimed by those advocating sanatorium care: (1) Possibility of accidents. (2) Personal inconvenience to the attending physician. (3) Lack of funds to carry on the treatments to completion. (4) Lack of fluoroscopic and radiographic control. (5) That it is theoretically sound but fraught with many difficulties. (6) Poor environment, and psychologic enthusiasm for first few treatments but which lags later on. (7) Danger of infection and lack of control.

What are the necessary requirements for successful home treatment? Briefly enumerated they are: First and foremost, an intelligent and coöperative patient; a light and sunny room; proper isolation; necessary and proper food; proper routine; asepsis; disciplinary measures; and the psychologic factor, namely, a happy environment.

In the majority of cases he finds that patients can be made to conduct themselves at home and live in the same manner and follow the same instructions as in an institution, unless it is impossible to isolate the patient in the home. As for checking up collapse by *x*-rays and fluoroscope after the first injection, Fine thinks there is no necessity for *x*-rays or fluoroscope. Nothing of value is added because the small amount of air given will not show much. He usually follows up these by portable *x*-ray in febrile and office fluoroscopy in ambulatory cases.

Out of 100 cases of tuberculosis treated by him last year, only five have been sent to a sanatorium. He is of the opinion that the treatment of tuberculosis by artificial pneumothorax can be accomplished just as successfully at home as at a sanatorium. The operator should not give the first treatment unless he has an assistant. It is most important that the first treatment be given in the patient's home rather than at the office, with the help of an assistant. This makes it possible for a most successful treatment. The assistant physician is present to see that any emergency, such as pleural shock or hysteria, can be attended to immediately so that the operator will have nothing else to do except administer the air, watch the manometer, and look out for the welfare of the patient. The sterilization of the instruments and all other details for a successful operation can be attended to by the assistant.

In the 200 and more cases of artificial pneumothorax, and approximately 1800 refills, which he has given in the last seven years, he has always made it a point to give the patient as little air as possible, and he believes that this is the reason why he had only one patient who developed fluid. He recalls only two patients who experienced pleural shock, and in one of these cases it was due to the fact that after the pleura was cocainized he withdrew the small needle and inserted one of much larger caliber. It seems to him that the greater the bore

of needle, thus injuring more pleura, the greater the possibility of shock. Furthermore, he has observed many times that when the patient is in a terminal stage, with difficulty in breathing, due to the lung tissue being almost destroyed and filled with secretion, by giving the patient a small amount of air and causing a slight partial collapse he is made more comfortable and feels better, and the end is not as laborious as when he is merely left alone. He finds also that when artificial pneumothorax is given in incipient or moderately advanced stages, the patients are much more benefited and a greater number able to return to work than the far-advanced cases.

The rapid construction of sanatoriums within recent years all over the country, with no special claim for climate, speaks for itself, namely, that climate is not very important in the cure of tuberculosis and that the individual can be treated everywhere. Good results are being claimed all over the country. The patient who refuses or who is unable to go to a sanatorium must be treated somewhere and must be taught to adopt the methods of the sanatorium at home, and he should have as much help as science can give him. The operation can be done in such manner that he will not be afraid of a refill.

Infantile Tetany.

In the *Journal of the American Medical Association* of December 4, 1926, SCOTT and USHER state that in a group of twenty-one cases of infantile tetany, analyzed as to etiological factors, symptoms, blood findings, and treatment, the findings as a whole confirm those of other writers' reports.

No patients were seen who did not at some time have generalized convulsions.

The age incidence of these cases is on the average lower than that of most series reported.

None of the infants had had consistent prophylactic treatment with cod-liver oil.

Infantile tetany may occur with a blood calcium within the normal range, as illustrated by two of their patients. One of these had a relatively and absolutely high blood phosphorus.

The ratio of phosphorus to calcium in this series of cases is higher than the normal, but this is attributed to the low calcium figures.

Mercury vapor quartz lamp irradiations appear to cause the most rapid restoration of the blood calcium to normal values.

The administration of calcium chloride appears to have the most prompt effect in causing the convulsions to cease.

Intramuscular Ether Injections in Complicated Pertussis.

In the *Journal of the Missouri State Medical Association* for December, 1926, SUMMERS states that during the past year he has used intramuscular ether injections rather extensively in pertussis cases with gratifying results, and especially so in cases with complications. In families where there was more than one child with pertussis a comparison of the results with ether and vaccine were made. The child with the most severe symptoms would receive the ether injections. In all cases the ether proved the more effective treatment. The response in most cases was noticeable after the first injection, but occasionally not until the third injection had been given. So far as he was able to determine there were no ill effects other than the ordinary muscle soreness. He emphasizes the importance of using fresh ether and large doses, given deep into the gluteal muscles.

There has been considerable comment on the danger of necrosis of tissue at the site of injection, but he failed to see more than one bad result in his series of 78 cases, and this was due to faulty technique. It is very important in giving these injections to insert the needle deep into the muscles of the upper gluteal area and to inject the ether slowly until the entire amount has been expelled from the syringe before withdrawing the needle. A finger is placed over the puncture wound to prevent the escape of the ether and the area is lightly massaged. It is also very essential that some one be-

sides the mother hold the child so that it will be as quiet as possible until the injection is completed.

In the writer's hands ether injections have been the most effective treatment in complicated pertussis.

Large doses of fresh ether given daily or every other day produce the best results.

No ill effects were noted in this series of cases either with large doses or repeated doses.

The Vacuum Headache: A Frequently Overlooked Condition.

JENNINGS, in *Southern Medicine and Surgery* for December, 1926, states that this term is applied to a condition in which the nasofrontal duct becomes blocked partially or completely, some or all of the air in the frontal sinus being absorbed; and soon we have a negative pressure followed by congestion, which is recognized as the first stage of inflammation. This is the generally accepted explanation of the mechanics and pathology of the condition. Some of the patients have constant frontal headache; some have headache which comes on while lying down and wears off after they have been up a few hours, and others only after using the eyes for close work. These symptoms vary apparently with the degree of blocking present.

In practically all cases there is tenderness at the upper inner angle of the orbit (Ewing's point). The tenderness is brought out by pressure upward. In a few cases, on account of the bone which forms the floor of the frontal sinus being unusually thick, the tenderness will not be elicited.

In some cases this condition has to be differentiated from supraorbital neuralgia. The supraorbital notch is located, and pressure made at this point and at Ewing's point. If the condition is a neuralgia, or a neuritis, the region of the notch is the point of greatest tenderness. If the frontal sinus is involved as in a vacuum headache or frontal sinusitis the greater tenderness will be at Ewing's point.

Of course the condition has to be differentiated from acute or chronic suppurative frontal sinusitis, but this can usually be done very readily. In the vacuum headache condition the nose is clean (no accumulation is found between the middle turbinate and the outer wall of the nose), and the frontal sinus lights up clearly on transillumination. In these cases the best *x*-ray men will report no evidence of sinus disease. The space between the middle turbinate and the outer wall or the bulla ethmoidalis is crowded either by a large middle turbinate, a prominent bulla, or a high deviation of the nasal septum. In most cases the middle turbinate is responsible for the condition.

The other condition with which it is often confused and in which it often plays a part is that of headache due to eye-strain. Frequently errors of refraction and vacuum headaches are found present in the same individual. More frequently, however, we find people who have been properly refracted and fitted with glasses, who say the glasses have been of very little help to them. Many of these patients will almost jump out of the chair if pressure is made on the floor of the frontal sinus, yet many have been through the hands of very competent and well-known specialists in this line without the condition being recognized.

In some cases the blocking is not complete enough to cause a constant headache, and the sense of eye fatigue comes on after the eyes have been used for considerable close work. This is misleading and is the cause of many improper diagnoses. It will be recalled that one thing necessary in reading is for the eye to be turned downward and inward, and this work falls very largely on the superior oblique muscle. Furthermore, this muscle runs through a pulley which is fastened to the floor of the frontal sinus, and when this muscle is active there is considerable tugging at this point. This readily explains why use of the eyes when the frontal sinus is congested can cause headache and apparent eye fatigue.

In most cases this condition can be re-

lieved entirely by local applications to the middle turbinate and the middle meatus. In some, one thorough application of one or one-half per cent solution of silver nitrate will give marked relief. The treatment should be continued until the tenderness as well as the pain has entirely disappeared. Sometimes it is necessary to remove the middle turbinate or to do a submucous resection of the septum, but this is not often the case.

Many of these go for months without diagnosis and have taken headache powders, and various pain-relieving remedies prescribed by their own physicians, for quite a long period. Instances are recalled where patients took long and expensive trips to health resorts for relief from morning headaches when, if the condition had only been recognized at home, it could have been relieved by just a few local treatments.

It seems hardly necessary to call attention to a condition so simple, so easily recognized and often so easily treated, yet it is so often overlooked and neglected and may be so annoying to the patient that Jennings feels the foregoing remarks are justified.

Hyperthyroidism, Myxedema and Diabetes.

In the *Archives of Internal Medicine* for December, 1926, WILDER states that thyroidectomy is clearly indicated in the large majority of cases of combined diabetes and toxic goitre. Nevertheless, the operation should not be undertaken unless the surgeon is familiar with the measures necessary to protect his patient from its effects. The period of exacerbated toxicity which so frequently follows on the heels of thyroidectomy is extremely dangerous to a patient with diabetes.

In a case of diabetes even greater care should be taken in preparation for thyroidectomy than is necessary with other operations in the presence of diabetes. Normal water balance should be restored, glycosuria and particularly any acidosis should be controlled, and an effort should be made to bring up the general nutrition and to replenish as far as possible the depleted stores of glycogen. The diet of these patients must be richer than is necessary or advisable for other patients with diabetes. The food calories should equal at least twice the normal basal caloric requirement and the allowance of carbohydrate should be fairly liberal (100 Gm. or more). There seems to be no advantage in giving more than 50 or 60 Gm. of protein.

In order to check glycosuria while the liberal diet is being fed, insulin will be required. It is often necessary to inject insulin at six-hour intervals. A close watch must be kept to avoid acidosis on the one hand and hypoglycemia on the other. These patients are peculiarly sensitive to the latter, due probably to the fact that the liver in cases of hyperthyroidism may be poor in glycogen.

A diagnostic criterion of importance in the coma from hypoglycemia is the blood-pressure. This is usually sharply elevated during insulin reactions. He has seen the systolic pressure as high as 220 mm. of mercury during hypoglycemic coma in a patient whose systolic pressure was ordinarily 120. It falls again within half an hour after the blood sugar is restored to normal. So far as he knows, this hyperpiesis from insulin has not been reported heretofore. It is due probably to the liberation of epinephrine, a spontaneous attempt at the restoration of a normal blood sugar.

Because of the peculiar sensitiveness of these patients to hypoglycemia it is better not to attempt the complete control of glycosuria until some days after operation. The persistence of traces of sugar in the urine (from 5 to 10 Gm. in a twenty-four-hour specimen) seems to have no ill effect either on the resistance of the patient or on the healing of the operative wound.

Compound solution of iodine is given in doses of from 1 to 3 cc. daily: the usual dose is 10 minims (0.6 cc.) three times daily. In cases of adenomatous goitre with

hyperthyroidism iodine may be ineffective, but since it is not always possible to exclude exophthalmic goitre, and since iodine can do no harm in any case of hyperthyroidism, during the short period while the patient is being prepared for operation, it seems best to use it as a routine when the basal metabolic rate is elevated. If the patient is in diabetic coma and unable to retain medicines given by mouth or by rectum, sufficient absorption of iodine can be secured by painting a 5-per-cent tincture of it on the skin. The operation should be deferred until a maximal iodine effect has been obtained and the patient has recuperated as much as possible. This may require from two to three weeks. The criterion of operability in exophthalmic goitre has been discussed recently by Pemberton. Prolonged deep general anesthesia should be avoided. After operation fluids should be given in abundance and sugar (glucose) administered by mouth, by rectum, or by vein, so that the patient receives 100 Gm. of it daily. The diet can usually be resumed by the second or third day.

If a thyroid reaction results from the operation the doses of iodine and insulin must be increased. It is frequently necessary to give 1 cc. of compound solution of iodine every six hours and to use as much as 20 units of insulin every six hours. The insulin dosage must be controlled by frequent examinations of the urine and blood, as the danger of hypoglycemia seems to be particularly great shortly after the operation.

It is important to give these patients a thorough training in dietetics and in the management of diabetes. The time of their convalescence should be used for imparting this information to them. While diabetes may occasionally be arrested by thyroidectomy and will be decreased in intensity in most cases, it will nevertheless remain after the thyroid element of the combined diseases has been removed. These patients deserve, therefore, the same consideration from the standpoint of diabetes as do others with diabetes.

While there has been no recurrence of hyperthyroidism in this group in which thyroidectomy was recently performed, it is considered advisable before dismissing these patients to caution them against the danger of postoperative recurrence so that they may be prepared to return promptly for further treatment in case thyroid symptoms should manifest themselves anew. In the presence of such recurrence an attempt is made to control the disease with iodine, but if this fails further resection is advisable.

Further Studies in Sedimentation.

In the *American Journal of Obstetrics and Gynecology* for November, 1926, BAER and REIS state that the sedimentation test is more useful than the temperature curve or the leucocyte count in determining the presence or absence of infection.

A sedimentation time of more than two hours rules out infection in the existing pelvic pathology.

The test is a further aid in determining the safest time for operation, sixty minutes being the lower limit of safety.

The sedimentation test is a more delicate prognostic index, good or bad, than either the leucocyte count or the temperature curve.

Progress in Psychiatry.

CORIAT in the *Boston Medical and Surgical Journal* of December 16, 1926, states that in order to gain further information as to the therapeutic effects obtained and the relative value of various methods by which luminal may be given, a comparative study was undertaken of the results secured by the oral, subcutaneous, intravenous and intraspinal methods of treatment.

For this purpose a series of four groups of selected cases was chosen from among the inmates of the Craig Colony for Epileptics. The results obtained led to the following conclusions:

1. Luminal may be given orally, subcutaneously, intravenously, or intraspinally.

2. No ill effects have followed the administration of therapeutic doses of this drug by any of these methods.

3. No tolerance is developed for phenolbarbital by any of the forms of treatment used.

4. The effect of luminal in epilepsy is palliative rather than curative.

5. Sudden withdrawal of the drug is contraindicated.

6. Luminal treatment by any of the four methods mentioned apparently has more influence upon severe than mild attacks.

7. The period required for the appearance of therapeutic effects is as follows: Orally, one-half hour; subcutaneously, fifteen to thirty minutes; intravenously, almost immediately; intraspinally, half an hour or more.

8. The subcutaneous method of administration is preferable in serial seizures.

9. The employment of the intravenous method is indicated in status epilepticus.

10. Intraspinal injection may subsequently render refractory cases more amenable to other types of treatment.

Surgical and Genito-Urinary Therapeutics

Artificial Insemination.

MEAKER *(Boston Medical and Surgical Journal,* Sept. 2, 1926) regards post-coital examination as the most important means of determining the cause of sterility. Transuterine insufflation is also helpful. The relation of diet and hygiene on the fertility of the sex cells must be carefully considered.

Hühner has shown that conception is most unlikely to occur unless the cervix is directly inseminated at ejaculation, since spermatozoa very quickly perish in the acid environment of the vagina. That pregnancy has many times followed vulvar ejaculation is, of course, well known, but most of these cases are in women not habituated to coitus, whose vaginal chemistry and bacteriology are of the virginal type and hence not inimical to spermatozoa.

In woman anteflexion of the cervix, with or without retroversion of the uterus, is the condition most commonly responsible for a fault of reception.

Another and quite different group of causes of sterility comprises various abnormalities on the part of the cervical secretions which render them hostile to spermatozoa. The secretions may be acid, or infected, or simply thick and tenacious; in any of these events they are likely to prevent spermatozoa which have entered the cervix from reaching the upper genital tract.

Direct examination of the cervical material post coitum, with the supplementary examination of a condom specimen in many cases, allows us definitely to establish or to rule out causes of sterility of these two groups — the faults of delivery-reception, and the cervical hostilities. At the same time we incidentally gain accurate knowledge of the male's power of production—the only item of information which would be obtained from the condom specimen alone.

There are three possible results of a post-coital examination: the cervix may yield spermatozoa in every way normal; defective spermatozoa; or no spermatozoa at all.

In the first case we at once find ourselves in possession of information upon three important points: male production is normal (no condom specimen is needed); delivery and reception are normal; and the cervical secretions are normal. In short, the cause of the sterility is by a single examination demonstrated to be in the female, and in her supracervical genital tract. No other single examination can tell us so much.

In the second case, where defective spermatozoa are recovered from the cervix, a condom specimen must be studied. If it contain normal spermatozoa, then again we

know three things: male production is normal; delivery and reception are normal; but the cervical secretions are in some way hostile. If, on the other hand, the spermatozoa in the condom present the same defects as those in the cervix, then we have identified a fault of production and ruled out faults in delivery-reception and in the cervical secretions.

Where no spermatozoa are found in the cervix, it is necessary to see a condom specimen. If it shows normal spermatozoa, or for that matter any spermatozoa, then there must be a fault of delivery-reception. If the condom contains no spermatozoa, we are obviously dealing with a fault of production.

The main causes of sterility are found to occur, roughly speaking, with the following relative frequency: Defective production of spermatozoa, 48 per cent of cases; male faults of delivery, 4 per cent; female faults of reception, 4 per cent; cervical hostility, 16 per cent; tubal occlusion, 16 per cent; defective ovulation, 16 per cent.

Thus in twenty per cent of sterility cases (the faults of delivery-reception plus the cervical hostilities), the difficulty is of such a nature that it can be overcome by artificial insemination. In the other eighty per cent such methods would, of course, be utterly worthless. Post-coital examination conjoined with condom study makes it possible to distinguish the twenty per cent from the eighty with the greatest accuracy.

It does not follow that artificial insemination is the method of first choice in the twenty per cent of favorable cases. The ideal treatment is to correct the abnormality so that natural insemination becomes efficient. More often than not this can be done; occasionally, however, it is difficult or impossible, and in such cases artificial methods are clearly indicated, for they then offer the only reasonable hope of cure.

When the average normal man and woman marry and have coitus without contraception, it is generally several weeks and often several months before pregnancy occurs, because with people of ordinary or mediocre fertility a large element of chance is involved in the meeting between a highly fertile ovum and a spermatozoön of similar quality. Hence in undertaking artificial insemination one must be prepared to repeat it, if necessary, a great many times before considering it a failure. This point is of fundamental importance.

If every sterility case, without the slightest preliminary study or selection, received artificial inseminations to the number, if necessary, of fifty, there is little doubt that nearly twenty per cent would be cured. If every sterility case in which careful study had clearly identified a fault of delivery-reception or a cervical hostility and had ruled out all other causes were treated in the same way, the percentage of successes in such a selected group should approach one hundred. In other words, we have here what is probably the most efficient single method of treating sterility, if it is used intelligently. It has never been so used in the past.

There is a case report of sterility in a woman who had been married nineteen months. The uterus was in third degree of retroversion-flexion, the os externum was covered by the anterior vaginal wall. There were found on examination post coitum a few dead spermatozoa in the vagina and none at all in the cervix. The uterus was replaced by manipulation and held in position by Smith's pessary. A year later there had been no pregnancy, though examination showed numerous spermatozoa in the cervix, thus proving the mechanical obstacles to insemination had been overcome; the spermatozoa, however, were all dead, being entangled in a thick cervical mucus. Condom specimen showed perfectly healthy, active spermatozoa. Artificial insemination was advised and was considered by the patient for six months, she, in the meantime, consulting other physicians who advised abdominal operation. Artificial insemination was practiced just before a period and was to have been repeated immediately after the period. After the first insemination her period did not appear. At the time of the report the patient was nine weeks pregnant.

The Treatment of Eczema with Sodium Thiosulphate.

THRONE, VAN EYCK, MARPLES and MEYERS *(Urologic and Cutaneous Review,* September, 1926) note that eczema is one of the most common diseases of the skin and involves a large proportion of the patients suffering with skin diseases. Its frequency and its effect on economic relations render it one of the most important subjects to be considered. It is defined as an acute or chronic inflammatory disease of the skin characterized by erythema, papules, vesicles, pustules, scales, scabs, or crusts, alone or in combination with associated thickening and infiltration, and more or less attendant itching and burning.

Observations by Dennis and McBride, Fordyce and Myers have shown that edema accompanied many cases of dermatitis, and dermatitis exfoliativa following the use of arsenicals. Whenever sodium thiosulphate is consistently applied to these cases the edema disappears, and the skin soon becomes normal. The excretion of arsenic is increased and the restoration of normal skin function is promptly attained.

With these ideas in mind it occurred that application of sodium thiosulphate should produce the same results in cases of eczema. To quantitatively follow the progress in cases of eczema it was decided that sugar and chloride determinations would give a satisfactory measure.

In 104 cases of eczema an abnormally high sugar content is observed. No patient with eczema who shows a chloride content exceeding 500 is improving under treatment, and whenever the chloride content, after having fallen below 500, again reaches the 500 mark, that case is accompanied by a relapse of the previous condition.

As a result of a very large number of injections of sodium thiosulphate it has been definitely shown that 0.5 gram is the most satisfactory amount to be used for this work. This statement must not be confused in its relation to the treatment of metallic toxemias in which a rapid elimination is desired. In the skin condition such as eczema in which cell activity is involved, there must be a slow and gradual process of drawing these fluids from the interior of the cell.

As to results of 104 cases treated three times a week with thiosulphate using 0.5 gram of the drug. In more than 80 per cent of these cases prompt response to the treatment has been obtained and the patient has been able to resume his usual activities. In this series of cases of eczema there was an involvement of the carbohydrate and chloride content of the blood. It would appear there had been a deposition of these substances in the cutaneous layer.

Local Injury as a Causative Factor in Bone Sarcoma.

COLEY *(International Journal of Medicine and Surgery,* August, 1926) from an analysis of a series of cases concludes that in sarcoma, especially in sarcoma of the long bones, there can be no longer the slightest question that a single local trauma in the form of a bruise, a sprain or a fracture may be the direct exciting cause of the sarcoma.

The percentage of cases in which it is fair to conclude that the antecedent trauma was an important causative factor in the development of the disease is very high; in the neighborhood of 50 per cent.

The interval between the injury and the first appearance of symptoms (pain) or physical signs (tumor) may vary from a few days to two years or more; yet in the great majority of cases the interval is less than six months, and in 50 per cent of the cases less than one month.

A rational and thoroughly scientific explanation of the causal relationship between trauma and a malignant tumor is possible if we assume that malignant tumors are due to some form of microörganism or virus.

From a medicolegal standpoint, in order to establish causal relationship between the injury and the development of the malignant tumor, the following conditions formulated by Segond should be fulfilled:

The authenticity of the trauma. Suffi-

cient importance or severity of the trauma. Reasonable evidence of the integrity of the part prior to the injury. Correspondence of the tumor to the site of the injury. A date of appearance of the tumor not too remote from the time of the accident to be reasonably associated with it. A diagnosis established by clinical and *x*-ray evidence, supported when possible by microscopical confirmation.

The Significance of Meconium in the Vagina During Labor.

WILHELM *(Journal of the Missouri State Medical Association,* September, 1926) alludes to the popular belief obtaining among the midwives to the effect that the passage of meconium may be regarded as a certain sign of fetal death. Jesse, in 1888, wrote from his study of 3340 labors that the passage of meconium alone is no indication for forced or hurried delivery.

Gijrot, in 1920, published a study of 6435 vertex presentations with passage of meconium.

Schulze concludes that the passage of meconium by the child during labor is in a large number of cases entirely independent of fetal asphyxia. The passage of old meconium at the time of rupture of the membranes is of no prognostic value as to the later development of asphyxia. Fresh meconium with rupture of the membranes, or later, in labor, may be or may not be associated with asphyxia; in the latter case changes in the fetal heart sounds are present also. Meconium appearing after other signs of fetal distress is frequently a sign of the onset of very deep asphyxia, and the child may perish even though delivery be very rapidly accomplished. A strikingly high proportion of over large children pass meconium, in most cases without serious significance. The cause of passage of meconium in cases without asphyxia cannot yet be stated.

The passage of meconium in breech presentations is the common rule and is the result of pressure on the baby's trunk, not from the relaxation of the baby's sphincter occasioned by distress nor approaching asphyxia, and has no special significance, the diagnosis having been previously determined.

Notes Regarding Venereal Diseases in the Industries.

BRUNET *(International Journal of Medicine and Surgery,* August, 1926) quotes a paper by Stokes and Brehmer, published in 1920, and based on a review of 3000 unselected case histories of patients who had received treatment in the Mayo Clinic. In a study of these cases it would appear that syphilis is eight times as prevalent in railroad employees as farmers, three times as prevalent as in common laborers. Twenty-eight per cent of the cases come to the clinic because of gastrointestinal symptoms.

Stokes recommended as a means of lessening incidence of syphilis among railroad workers that routine Wassermann tests should be performed on all employees between the ages of seventeen and twenty-five, by a competent State board of health laboratory, and repeated on all employees reaching thirty-two years of age.

There should be annual effective examination of men between the ages of twenty-five and forty, rather than of men over fifty. Such examinations should include more attention to pupilary reactions than is at present given, and should employ fundamentals of the neurologic examination, such as tests of the deep reflexes, Romberg, etc. These can readily be performed by competent general examiners.

Formal educational propaganda should be undertaken by railroad medical departments for the education of medical examiners and employees alike to the great significance of syphilis in industrial insufficiency and personal ill health.

As a means of lessening incidence the authors seem to have some faith in clinical suggestions, *i.e.,* educative measures, encouragement in the direction of prompt medical treatment, and "instruction as to the physical possibilities of the situation." The patient should be kept under observation until cured.

Physiotherapy.

Under this title FLAGGE (*Southern Medicine and Surgery,* October, 1926) thus sets forth the essential equipment required for the small hospital:

The following is the least that will meet the demands in a fairly complete manner. First, an *x*-ray outfit which need not be of the so-called deep therapy type, for there will be a hundred calls for light therapy to one for deep therapy. Radium will be an asset, although one can do without it. Second, ultra-violet and infra-red light. We may, if we choose, include radiant light, but Flagge thinks that the infra-red will take the place of it quite well. Third, a galvanic and sinusoidal machine. These currents are now obtained in one machine which takes the commercial current and changes it into the several modalities. Fourth, a standard high-frequency cabinet with all three currents properly wound. For effective work in a hospital there should be a portable cabinet.

If deep therapy is to be given it is conceded that this should be in the hands of one who gives this form of treatment special attention. In other cases the average physiotherapist will be able to handle the *x*-ray in connection with the other general work of the department. Light and electrotherapy present peculiar cases because they have been brought to the profession entirely through commercial agencies.

The manufacturers are placing the sales on an ethical basis. This will give the profession the assurance to which they are entitled from the standpoint of ethics.

With the exception of the *x*-ray machine, all the apparatus should be installed in one room, which is large, well ventilated, and light. In this room there should be two good tables, constructed principally of wood, although one may be of the ordinary metal type if a good thick rubber sheet is at hand to be used for insulating purposes when necessary. One of the tables should be suited to vaginal and rectal work.

One versed in physiotherapy, having the range of an ordinary small hospital, will find a large number of cases in which he may be able to help the internist or the surgeon. The only necessity here will be for coöperation.

Physiotherapy takes the place as an aid to the internist with an ease and certainty of benefit that argues for a continuance of its relationship with this branch of the profession. Its field of usefulness to the neurologist has not been exhausted.

The urologist finds his best ally in this form of treatment. Since the advent of practical cystoscopy there has not been introduced into the practice of urology such an effective agent as physiotherapy.

Finally, surgery claims it among its latest and best acquisitions. Leaving out of consideration the matter of removal of the many forms of superficial growths in which it is invaluable, in the form of electro-coagulation, desiccation and fulguration, it has entered the field of major surgery. This form of surgical procedure has been found most useful in malignancies where it is important to seal the lymphatics before removing the malignant mass. The surgeon should not forget that he has here an instrument which is adaptable to intra-abdominal as well as extra-abdominal work. The technician should be on hand in all major surgical operations to make adjustments of current. The actual control of the switch delivering the current to the field should be at the foot of the surgeon for his personal operation, as the time necessary to give an order and to have it executed may make a difference between coagulation and cauterization, or fulguration.

If the best results are to be obtained it is imperative that ample provision be made for the patient to have a period of rest and relaxation after he leaves the treatment table. It is not fair to the patient or to the doctor to allow the former to leave the house immediately, to resume work, or to take the exposure of outside temperatures.

Wallace (quoted in the *Medical Sentinel,* November, 1926) states that physiotherapy, by which he means the electrical applications, is probably used oftenest by the general

physician, or family doctor. He speaks on the basis of a three-year experience. Over ten or fifteen years previous to this he had used a galvanic current and a static machine. He holds that in many conditions recovery can be brought about in a much shorter time by the aid of physiotherapy than by the aid of any other means. In three years he has had trouble with the quartz light but once, and that incident to a loose screw. Twice galvanic apparatus required adjustment and once the diathermy apparatus required skilled attention. He holds that to do complete work in the most satisfactory manner it is necessary to have several modalities. Some of these are combined so that there may be two or more in one apparatus. In his office he has the galvanic, sinusoidal, high-frequency, quartz light (water-cooled and air-cooled), a large radiant light, and a vibrator. The quartz mercury, air-cooled lamp and the high-frequency outfit are more used than are the others.

Heat and light have been used for the relief of various ills from time immemorial, and in the use of the high-frequency machine all we do is to produce heat, either to a medical or surgical degree. This heat is produced by the resistance of the tissues to the passage of the current, and the degree of the heat is determined by the amount of current and the size of the electrode. The current is sent directly through the tissues from electrode to electrode, so that the tissues become heated through and through. Were it not for the fact that the blood is constantly carrying off some of the heat, tissue destruction would occur. It is a wise thing for the practitioner to make these different applications upon himself. Thus he will have a much greater appreciation of how the patient feels when an electrode is poorly applied or when too much current is passed or is passed too rapidly. In giving an electrical treatment the current should be gradually increased to the desired strength and not thrown in with a full switch.

The high-frequency produces purely a thermal effect, the sinusoidal mechanical, and the galvanic chemical actions.

The gonococcus is immediately killed at a temperature of 113° F. Less degrees of heat, if long continued, will prove devitalizing to it.

The Corbus electrode is placed within the cervical canal and a metal belt around the body at the pelvis. An electrode with a thermometer is to be preferred. The current is gradually turned on until a temperature of 114° to 120° F. is reached, and this is continued for a period of not less than one-half and if possible for three-quarters to one hour. Treatments are given once or twice a week. After a few treatments a great change is found in the appearance of the cervix and of the discharge. It takes from fifteen to thirty treatments before the gonococci disappear entirely.

Acute gonorrhea in the male is not amenable to treatment by diathermy, but the chronic condition, in which the prostate has become the seat of disease, is benefited by means of the prostatic electrode in the rectum and a block-tin plate over the region of the pelvis, opposite to it. It is necessary to shave the pubis, otherwise there will be a painful sparking effect.

Relief of epididymitis is one of the striking results. Patients almost universally say, after the first treatment, that they feel much better. From one to four or five treatments are given.

Neuritis of the different types is another condition in which great relief is given. In this condition, as in all others, the cause should, if possible, be found and removed.

Sprains are much more quickly relieved by this treatment than by any other method. Headaches are relieved in a short time, in almost every case, by means of the Tesla indirect current; seating the patient on the auto-conduction board and then drawing the current off through the operator's hands, placed on the forehead, over eyes, back of the head, or wherever the pain may be.

High blood-pressure cases, in which there is no reason why it should not be lowered,

are materially relieved by using the auto-condensation pad or couch.

Small warts, moles, etc., may be destroyed by desiccation or fulguration, either with Tesla indirect or the Oudin current. Lumbago, a condition so often found and so very uncomfortable to the patient, is relieved by either direct diathermy or the indirect Tesla current. If direct diathermy is the method selected, the electrode on the back should be much smaller than that over the abdomen in order to concentrate the heat in the spinal region.

Varicose Ulcer.

BYRNE (*American Journal of the Medical Sciences,* October, 1926) points out that in the mechanism of cure improvement in the local skin circulation is a *sine qua non.* This is secured by local measures and by bandaging. The latter, like excision or obliteration of the varicose veins, removes the columns of venous blood which check the circulation through the skin capillaries. The ultimate escape of blood from the skin capillaries into the deep veins only partially relieves the situation. A proper bandage by compressing the veins almost to the point of obliteration supplies artificially their missing tonus, leaving in them only thin columns of blood which are now adequately supported by the vein valves so that they no longer obstruct the capillary flow. Encasement in non-absorbent cotton evenly distributes the compression of the inelastic bandage and affords an optimum of "give" which permits beneficial work and exercise. After dressing the ulcer, usually by a smooth surface, such as strips of rubber tissue, oiled silk, or paraffin paper, and placing over this gauze, the author advises encasing the leg in a layer of non-absorbent cotton from the ankle to the knee and applying a firm, even bandage of unbleached muslin, over which a second bandage is applied. This second bandage is taken off every morning before the patient gets out of bed and is replaced, for the purpose of taking up the slack in the limb which occurs during the night. Dressings are changed as seldom as possible, the number being incident to the freedom of discharge.

Absorbent cotton rapidly loses bulk from imbibition of perspiration or exudate so that the bandage compression early begins to fail. This necessitates frequent changes of dressing, which retard cure. Non-absorbent cotton moreover acts as a mild counter-irritant, stimulating the nerves and smooth muscle in the skin and blood-vessels and the contractile substance in the endothelium of the capillaries and lymph spaces, thereby promoting blood and lymph flow. A ring of non-absorbent cotton about the ulcer tends to macerate the cicatrized margin, thus promoting the local circulation and epidermization. Absorbent dressings directly applied adhere to the granulating surface, and the more superficial granulations are torn off at each dressing. The rubber strips prevent this and stimulate granulation without permitting it to become excessive. They also help to macerate the cicatrized margin.

The author thus concludes his article: The immediate primary mechanistic factor in varicose ulcer is incompetency of the superficial vein valves which, in the erect or sitting posture, permits the unsupported columns of blood to add their pressure to the normal intravenous pressure, thereby counterbalancing or even overbalancing the intracapillary pressure; the net result being impairment of blood and lymph flow and increased tissue vulnerability.

Anything that impedes the return flow of blood to the heart from the lower extremities may act as a remote primary mechanistic factor by inducing blood and lymph stasis and dilatation of the veins.

Secondary mechanistic factors are: infection, cicatrized ulcer margin, enforced inactivity, endocrine dysfunction and impaired metabolism, general and local.

The fundamental indication in surgical or non-surgical treatment is restoration of the local circulation by removal or support of the long columns of venous blood which impede or halt the capillary flow.

Many surgical and semisurgical methods

of treatment of varicose ulcer are unsound in principle; excision and multiple ligation are sound in principle and applicable in certain cases, but they should always be supplemented by general and local prophylactic measures.

In severe, neglected cases treatment is best begun with recumbency and elevation which offset the immediate primary mechanistic factor.

In the majority of cases ambulatory treatment with compression bandages effects a rapid cure which may be kept permanent by prophylactic measures.

Endocrine treatment is indicated at one stage or another in almost every case of chronic ulcer, somatic or visceral.

Physical exercise is indicated as a cardiovascular tonic and as the best mobilizer and dispenser of the internal secretions.

Some Factors which Contribute to Failures in Hernia Operations.

HUTCHINSON (*International Journal of Medicine and Surgery,* October, 1926) speaks with a lack of confidence of catgut as a means of suturing the conjoined tendon to Poupart's ligament. He uses Pagenstecher's linen, first wiping all fascia and areolar tissue from the surfaces to be apposed. He advises against tight sealing of the skin wound and states that deep wound infection means failure in about 100 per cent of the cases. He notes that infection following herniotomy has been considerable and that disinfection of the scrotal skin is extremely difficult. A low incision should be avoided, as should trauma of the cord. The wound should be dry before closing. Rest and support are imperative after operation and for a considerable time. This support is particularly important during the period of recovery from anesthesia.

Three weeks should be spent in bed, and when the patient is turned he should be placed on the side on which the operation was done with the thigh slightly flexed on the abdomen and a pillow fitted as a back support.

The author is not convinced as to the absolute desirability of local anesthesia, but expresses himself as entirely satisfied with intrasacral injection.

Cæsarean Section in Johns Hopkins Hospital.

WILLIAMS (*Northwest Medicine,* October, 1926) reports on the material in his thirty-year experience, during which time Cæsarean section has become converted from a serious operation to one followed by such satisfactory results that it is in danger of being abused. His service represents relatively the largest contracted pelvis material in the country, half of his patients being negroes. He has learned that the mortality of Cæsarean section depends upon the time it is done, that it increases from practically nothing if performed at an appointed time before the onset of labor, or just afterwards, to 10 or 15 per cent when done late in the second stage. As years went by the necessity arose for effecting sterilization after repeated sections upon the same woman, as well as for overcoming the mechanical effects of the uterine myomata obstructing labor. These ends were attained by supravaginal amputation of the uterus with burial of the cervical stump. It was soon noticed that the convalescence following this relatively severe operation was much more satisfactory than after the simpler classical section, and the conclusion was promptly drawn that the involuting puerperal uterus did not offer ideal conditions for combating infection, so that if signs of infection were present, the safest procedure was amputation of the uterus.

While the peritoneum could cope satisfactorily with the contamination incident to the removal of an infected uterus, if the organ were retained it offered such favorable conditions for the spread of infection that general peritonitis frequently followed. Based on these facts the classical operation was limited to patients upon whom it could be performed at an appointed time before the onset of labor, or at most not later than six hours after it; while in all other patients,

and especially in those presenting clinical signs of infection, supravaginal amputation was done. The sequel demonstrated the correctness of Williams' conclusions, and since that time he has lost only two classical sections from infection, while in a series of 95 radical sections only a single death from infection occurred.

In approximately fifty operations cultures have been made from a sterile cotton swab introduced into the lower uterine segment immediately following the birth of the child, and before the fingers enter the wound, and Harris found them uniformly sterile in all elective sections, and constantly positive whenever more than six hours had elapsed between the onset of labor and the time of operation, irrespective of whether the temperature was elevated or not. In the positive cultures the predominating bacterium was the streptococcus, which occurred both in the aerobic and anaerobic, and in the hemolytic and non-hemolytic varieties.

Almost as many operations have been done during the past six years as in the twenty-six years preceding. This is in part due to a very considerable increase in the size of the material, as over one-third of his total number of deliveries have occurred since the former paper was written. A considerable part of the increase, however, is due to greater liberality in indications for the operation both in contracted pelves and in non-pelvic conditions.

Three hundred and sixty-three Cæsarean sections have been done in approximately 28,000 admissions, an incidence of 1.3 per cent or one to every 77 admissions.

In 122 conservative sections, which were in great part elective, there were no deaths from infection and only a single fatality from any cause. In that instance the patient was admitted profoundly shocked from concealed hemorrhage, following premature separation of the normally implanted placenta, and died at the conclusion of the operation.

With the conservative operation, the puerperal morbidity (temperature of 101° or more) increases proportionately with the number of hours elapsing between the onset of labor and the time of section; that is, from 14.75 to 75 per cent, according as the operation is performed at an appointed time at the end of pregnancy, or after labor has continued for more than six hours.

Nine operations were done for the purpose of sterilizing patients at a repeated section. Sterilization is permissible at a third section, provided the children are living, and in patients with pelvis sufficiently contracted to require section, but who enter the service presenting clinical signs of intrapartum infection after having been neglected. With the exception of dystocia due to the presence of obstructing uterine myomata, this represents the indications *par excellence* for radical section, as such cases are entirely unsuitable for a conservative operation, give a dubious prognosis with the low operation, and yet recover almost without exception following a radical one.

Insurmountable disproportion between the size of the head and the pelvis and obstruction by tumor are practically the only indications concerning which there can be no dispute, and that all others should be invoked only in individual cases, and then only after mature consideration. In none of the 180 operations did the indications consist primarily of abnormal presentations on the part of the child, and the current tendency to resort to Cæsarean section for breech, occiput posterior or other abnormal presentations in normal women cannot be reprobated too strongly.

Radical interference is sometimes imperative in neglected transverse, face or brow presentations in women with normal pelves, but in such cases it must be regarded as an emergency measure which is undertaken in order to prevent rupture of the uterus or the sacrifice of a good child, and must usually be followed by amputation of the uterus.

The first thought which occurs to many in the presence of eclampsia is delivery by Cæsarean section. This constitutes an abuse of the first magnitude, in that it is not only poor obstetrics, but actually adds to the danger of the patient.

In certain cases of acute fulminating preeclamptic toxemia, in which the cervix is so

rigid that eclampsia will probably supervene before its dilatation can be effected by means of a balloon, section does offer the most promising means of preventing its outbreak, more particularly if it be effected under cocaine administered locally or spinally instead of under a general anesthetic.

The frequent employment of Cæsarean section in the treatment of placenta prævia constitutes a serious abuse. Intelligent treatment by means of the bag gives such satisfactory results that other treatment is unnecessary. Section is indicated only in the rarest cases of placenta prævia; as, for example, when we have to deal with its complete variety associated with a rigid cervix.

Furthermore, it should always be remembered when contemplating Cæsarean section for placenta prævia or for any other nonpelvic indication that the future obstetric status of the patient demands consideration, and that while Cæsarean section may offer a satisfactory means of coping with the immediate situation, the existence of the uterine cicatrix materially diminishes the obstetric efficiency of the patient. Every one is acquainted with the possibility of its rupture in a subsequent pregnancy. Williams has had to deal with five such ruptures with two deaths.

Each year large numbers of Cæsarean sections are done unnecessarily. The profession at large does not appreciate the mortality connected with it. It is customary to assume that it is comparable to that of an interval appendix operation, namely, less than one per cent. It is true that such results are obtained in certain institutions, which are directed by those who are well acquainted with the technique of the operation, and particularly with the time at which it should be performed, but this does not apply to hundreds of hospitals throughout the country, where if the truth were known it would be found that the average mortality approaches ten per cent.

The abuse of the operation is a transient phenomenon which will be slowly corrected, as better facilities for obstetric instruction develop throughout the country and more young men are turned out from our clinics with a proper appreciation of the problems of clinical obstetrics and with the realization that any operative interference, which is not clearly indicated and which experience shows does not contribute to the well-being of the patient, is unworthy of their training.

Spalding writing on the same subject notices a constant increase in the frequency with which patients are Cæsareanized in San Francisco. Of 2020 patients 163 Cæsarean sections were performed, with a maternal mortality of 4 per cent. The increased maternal mortality is closely related to those operations done for seriously ill patients. Review of eclamptic patients in two hospital groups showed a maternal mortality of 28.5 per cent for Cæsarean section and a mortality of 18.9 per cent for spontaneous labor, forceps or version. The fetal mortality in the Cæsarean group is 28.5 per cent, in the conservative group 12.2 per cent.

Impetigo Contagiosa.

BALMAIN *(Lancet,* Sept. 4, 1926) on the basis of observation of 56 cases, and notes on treatment of 263 cases, finds the lesions of impetigo contagiosa may be caused by streptococcic or staphylococcic infection, or by a mixture of both these organisms.

The treatment resolves itself into two parts, before and after removal of the crusts. The method of removing the crust favored by the author lies in the use of an emulsion containing acriflavine hydrochloride 0.1, liquid paraffin 76, white wax 4, water 20. Lint is well soaked in this mixture and strapped over the affected area, any vesicles present being first opened. The paraffin causes breaking up of the crusts, which come away on the dressings without force in twenty-four to forty-eight hours. In some patients a further application is required and old black crusts are best removed by a preliminary starch poultice.

As to after treatment the best results are obtained by continuing with the dressing of acriflavine emulsion. Where this is done the lesions heal rapidly.

Reviews

SURGICAL CLINICS OF NORTH AMERICA. Volume VI, No. 6, December, 1926. W. B. Saunders Company, Philadelphia. Price per set per year, $12.00.

Ever since the Surgical Clinics first appeared they have been regularly reviewed with approval at each issue so far as we recall. The present volume represents communications made by surgeons practicing in the State of New Jersey. All of the reported clinics reveal the active and widely diffused surgical activities of these practitioners, many of whom have a reputation far outside of their own State; as, for example, Dr. Ill and Dr. Eagleton of Newark, Dr. Darnall of Atlantic City, and Dr. Mecray of Camden. As one would expect, Dr. Eagleton deals with traumatic and infective lesions of the head, which may be said to be his personal specialty; Dr. Ill reports upon operations upon the female genital tract, as does also Dr. Darnall; and Dr. Mecray deals with hernia in infants, fracture of the humerus, and epithelioma of the anus. These themes give the reader a fairly clear idea of the general trend of the contents of this issue.

THE SPECIALTIES IN GENERAL PRACTICE. Compiled by Francis W. Palfrey, M.D., in collaboration with others. The W. B. Saunders Company, Philadelphia, 1927. Price $6.50.

The object of this book is to provide the recent graduate in medicine when he embarks upon private practice with information which he often sadly needs when called upon to put into active use facts which he has learned in his undergraduate days. With this idea in mind, the author, or, he might be more properly called, the editor, of this volume of a little less than 750 pages, has called to his assistance thirteen of the teaching staff of the Medical School of Harvard University, so that the fields of dermatology, genito-urinary surgery, gynecology, rhinology and laryngology, obstetrics, ophthalmology, orthopedic surgery, otology, pediatrics, psychiatry and surgery are all included.

We are convinced that Dr. Palfrey has succeeded in bringing before the profession an excellent summary of medical practice for a man who is preparing to do pretty much everything that a doctor is supposed to do in small towns and cities where large hospital facilities are not plentiful or easily obtained. In other words, it is a good working manual in which it is impossible for everything to be included, but from which the young medical man, and perhaps the old one, too, can obtain information which will aid him very materially in dealing successfully with patients who come to him for advice and treatment.

THE ELEMENTS OF MEDICAL TREATMENT. By Robert Hutchison, M.D., F.R.C.P. William Wood & Company, New York, 1926. Price $3.

Dr. Hutchison is already well known to American readers because of other books which he has published, notably that on Food and Dietetics and an Index of Treatment. The present publication covers 163 pages, including the index, and is fairly well described in its title, in that the advice given with regard to the treatment of various conditions is brief and to the point. The book contains 22 chapters and deals with Fever, Pain, Insomnia, Constipation, Diarrhea, Heart Failure, Bronchitis, and a large number of other conditions commonly met with by physicians. The last chapter deals with minor medical operations.

The book is not suitable for students except as collateral reading. It is, however, very suitable for the young graduate during his term as a hospital interne, and the general practitioner will find many points in it which will prove useful.

TRANSFUSION OF BLOOD. By Henry M. Feinblatt, M.D. Illustrated. The MacMillan Company, New York, 1926.

A brief foreword by Dr. John O. Polak emphasizes the great therapeutic value of the modern methods of blood transfusion, and furthermore expresses the belief that every student of medicine should read the chapters on grouping, donors, and indications. The author in his preface tells us that the very large amount of literature

which has been rapidly accumulating has been carefully gone over and sifted. He has endeavored to embody the results of his personal experience. There are twenty-four illustrations covering various forms of apparatus and methods of transfusion. The text is divided into ten chapters. In the first chapter a historical résumé of the development of transfusion is given, and then the author considers the necessary physiological considerations, blood groups and blood donors, the indications for transfusion, the dangers and complications, methods, the author's own method, transfusion in children, and autotransfusion.

The unfortunate confusion which has arisen through the different classifications of Moss and Jansky is emphasized, and the author well says that it is necessary in reporting the grouping of blood to state whether the classification is that of Moss or that of Jansky. Because a committee of the American Medical Association decided that the Jansky classification was the best, he recommends it, although recognizing that the Moss classification has a greater vogue.

The book can be cordially recommended.

THE CONQUEST OF DISEASE. By Thurman B. Rice, A.M., M.D. The MacMillan Company, New York, 1927. Price not given.

As may be imagined from its title, the intention of the author in preparing this volume of 357 pages is to present the most recent scientific information concerning transmissible diseases to the end that these diseases may be controlled or perhaps ultimately eradicated. For the purpose of making the subject interesting to the general reader he has not attempted to discuss his theme in strictly medical language. He emphasizes the great advances that have already been made and the confidence which we have a right to hold as to future discoveries.

He divides his text into 38 chapters and three parts. The first five chapters deal with, amongst other things, the question of transmissible diseases, infection and resistance, and how we "catch" disease. In part two he discusses transmissible diseases spread by intestinal discharges, and then to those spread by the saliva, placing in this class cerebrospinal meningitis, tuberculosis, and leprosy. Further consideration is then given to insect-borne diseases and diseases transmitted to or through the skin or mucous membranes, such as rabies, tetanus, anthrax, various skin diseases, syphilis, and gonorrhea. The last five chapters are devoted to vital statistics, segregation and isolation and quarantine, fumigation and disinfection, sanitation in relation to epidemic disease and public health administration.

The text is one of the best that we have seen on this important subject.

Notes and Queries

Alcoholism Deaths Show Rise Under Volstead Law.

The *Indianapolis Medical Journal* for November, 1926, in an editorial on this subject says that deaths from alcoholism, according to the *New York Tribune* (July 25, 1926), have increased by 600 per cent since prohibition went into effect, as set forth in a mortuary table compiled by the Metropolitan Life Insurance Company.

There is an increase of about 25 per cent in the alcoholic deaths of 1926, as compared with those of 1925. That table shows that the number of deaths from this cause is steadily increasing.

The table, it is admitted, has marked limits, as it is based only on the 17,000,000 of North America's total population with which the company has dealings. The fact is stressed however, that, as far as it goes, the table is substantiated by the figures gathered for all the country by the United States Census Bureau. The government statistics have been brought up to the end of 1923 only.

In the table of the Metropolitan Life Insurance Company the figures in the column listing deaths from alcoholism take a decided leap after the advent of prohibition, and this jump continues to increase from year to year, except in 1924, when there was a slight decline.

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agree that the tendency to acidosis in Influenza and Pneumonia is very high. Meet this by prescribing Kalak Water in sufficient amounts to keep the urine always neutral.

Kalak Water Company
6 Church St. New York City

and at all other leading drug stores.

When Strychnine - Caffeine - Camphor *fail*

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(Pyridine-beta-carbonic acid diethylamide)

because it promptly, safely and efficiently stimulates the heart action and respiration.

Ampules, 5, 20 and 100 in a carton, for subcutaneous, intramuscular, intravenous and intracardiac use, when the emergency is great and minutes count . . .

Liquid, in bottles of 15 c.c., for oral use, in the continued treatment of cardiac weakness or respiratory impairment.

DOSE—1 to 2 ampules, or 1 to 2 c.c. (approximately 16 to 32 minims) of the liquid as often as necessary. In emergency, the dose may be doubled.

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PURITY RELIABILITY EFFECTIVENESS

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